

KIC 009291830

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009291830-01	OBS	No	468.156357	240.023615	3260.4	18.518	104.4	43.1	15.39	5038	106.84	45.53
009291830-02	OBS	No	512.559043	153.942254	2441.3	20.181	52.1	37.2	15.39	5038	93.44	40.35
009291830-03	OBS	No	332.861037	167.893415	179.2	16.221	9.6	3.1	15.39	5038	20.61	71.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291830-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009291830-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009291830-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

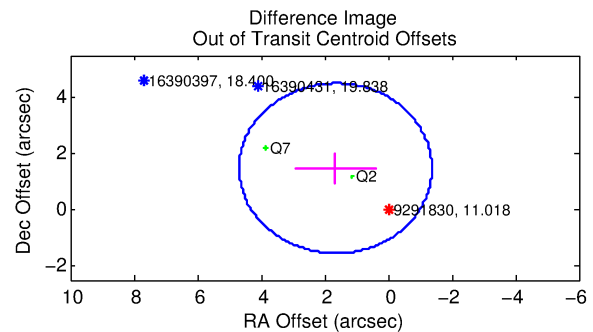
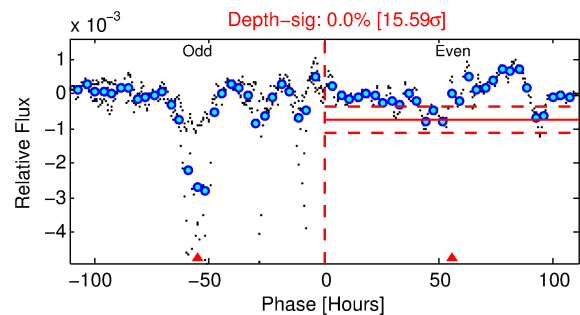
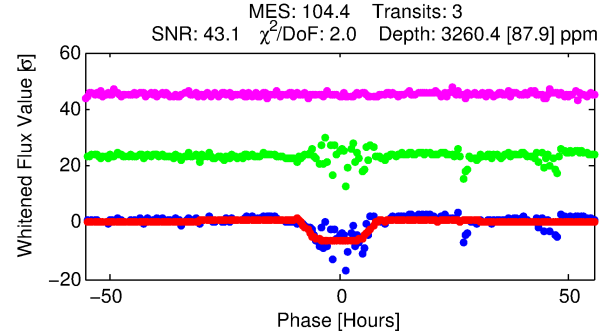
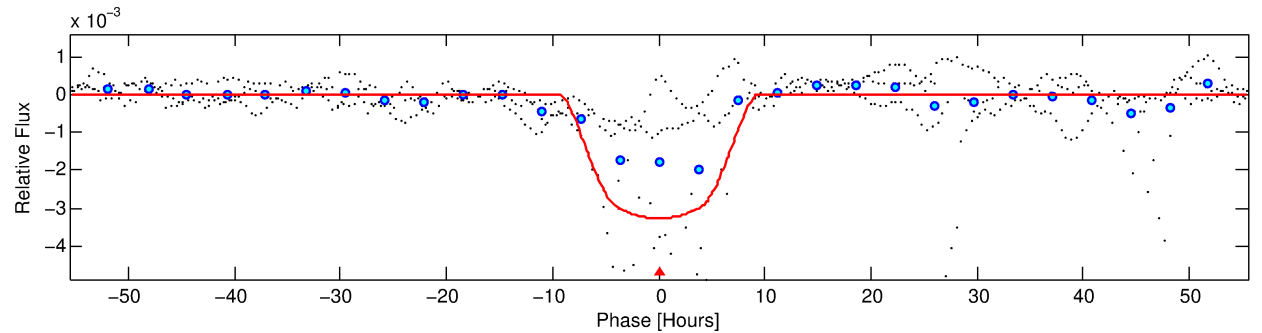
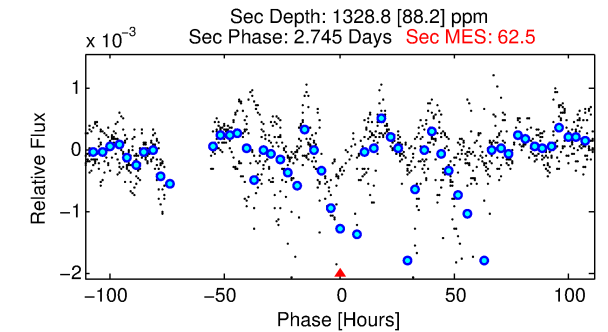
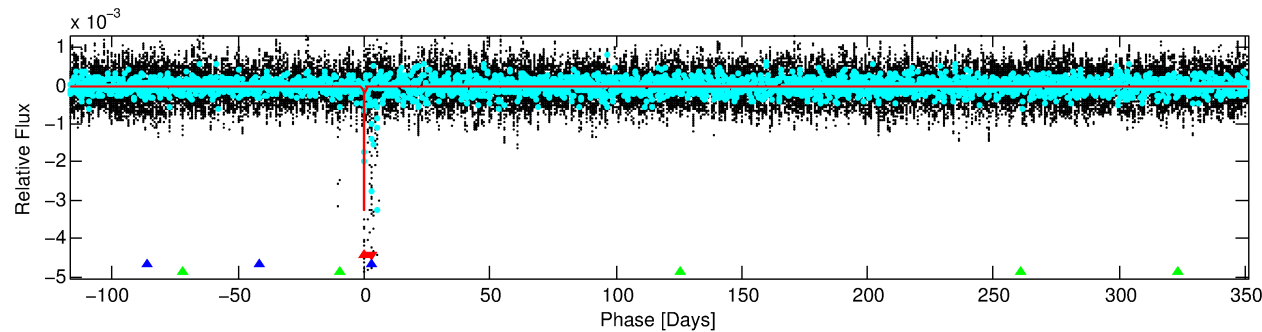
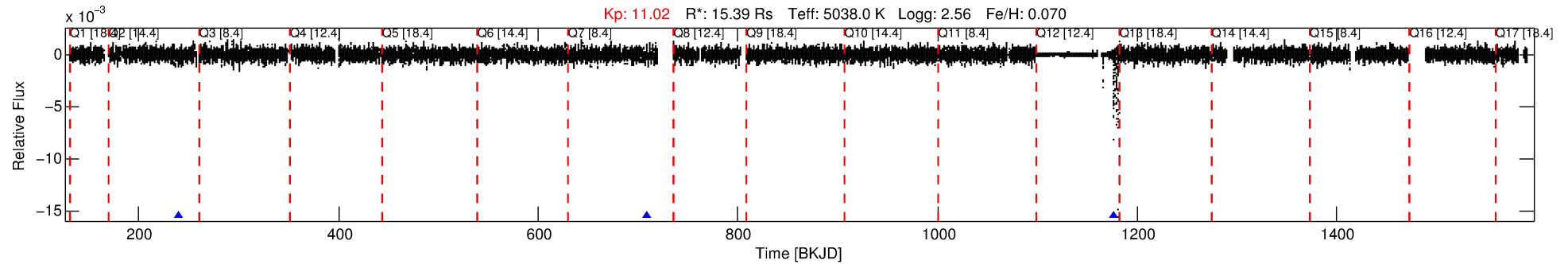
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009291830-01

No Significant Match Found

DV One-Page Summary

KIC: 9291830 Candidate: 1 of 3 Period: 468.156 d



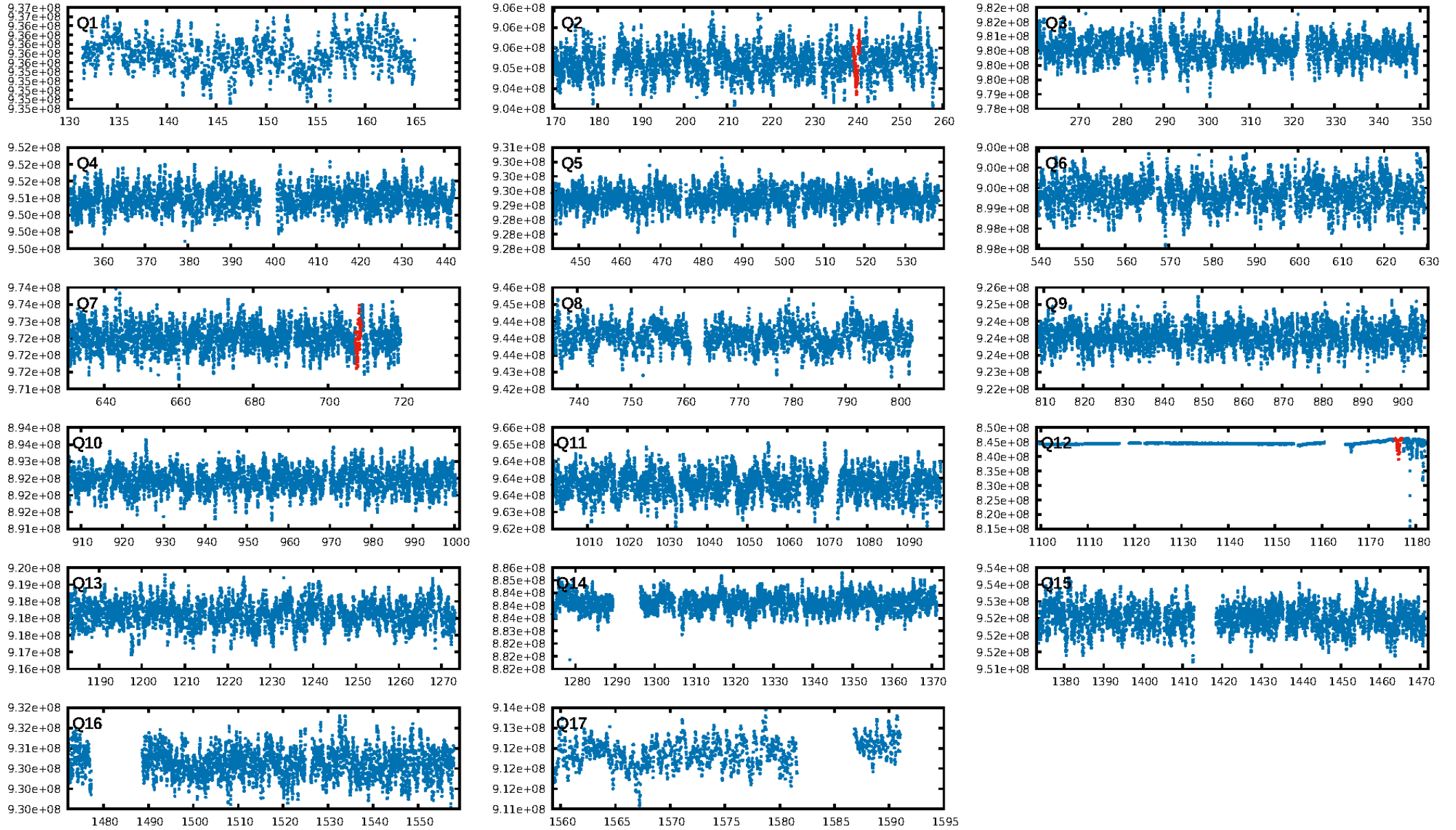
DV Fit Results:

Period = 468.15636 [0.00848] d
Epoch = 240.0236 [0.0157] BKJD
Rp/R* = 0.0636 [0.0014]
a/R* = 110.11 [5.59]
b = 0.90 [0.01]
Seff = 45.53 [6.96]
Teq = 662 [25] K
Rp = 106.84 [10.50] Re
a = 1.7332 [0.1190] AU
Ag = 192.39 [21.99] [8.71 σ]
Teffp = 3814 [145] K [21.39 σ]

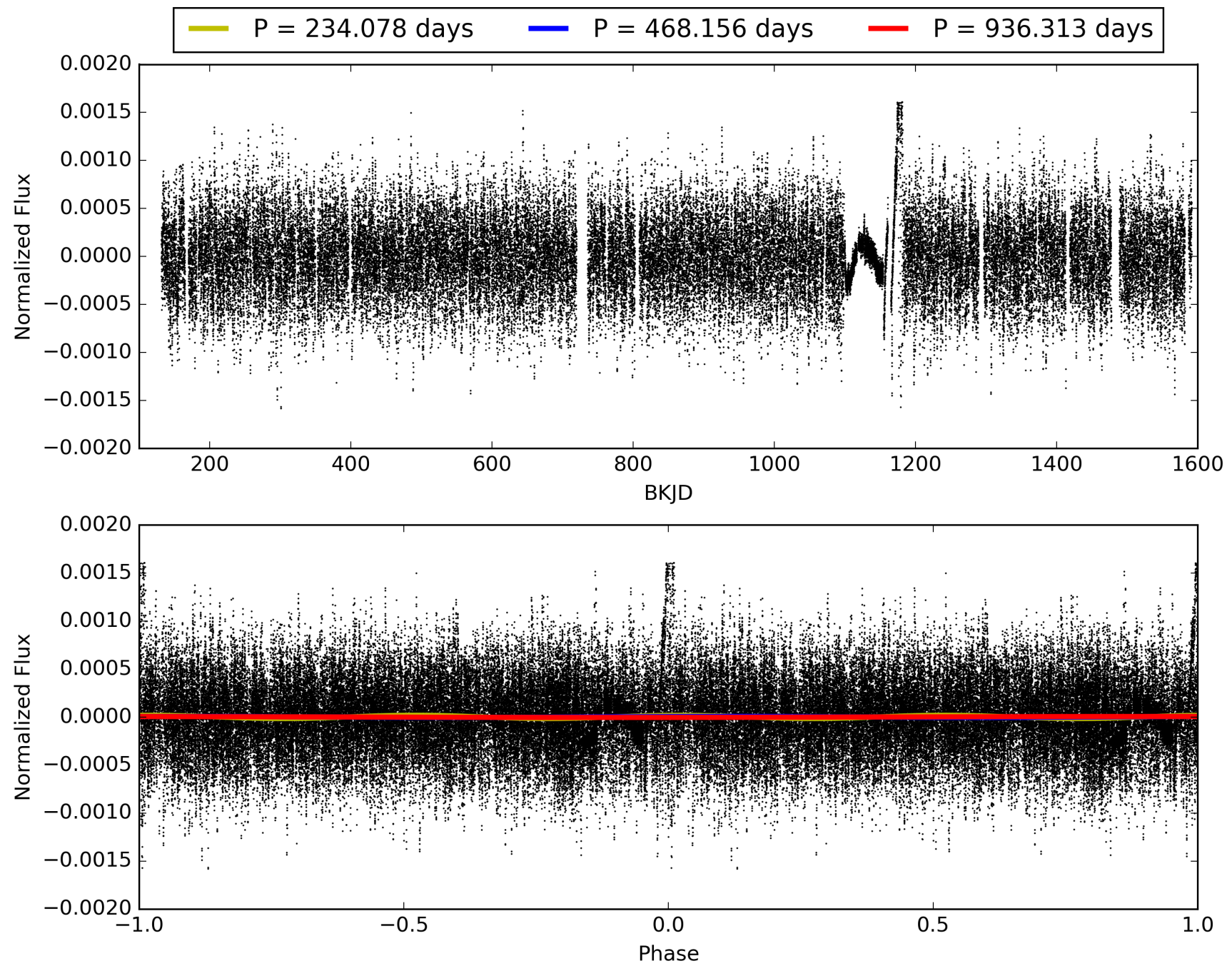
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [131.90 σ]
LongPeriod-sig: 100.0% [38.91 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.3%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 6.987
Centroid-sig: 8.0%
Centroid-so: 0.166 arcsec [2.31 σ]
OotOffset-rm: 2.219 arcsec [2.20 σ]
KicOffset-rm: 2.518 arcsec [3.72 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009291830-01, PDC Light Curves

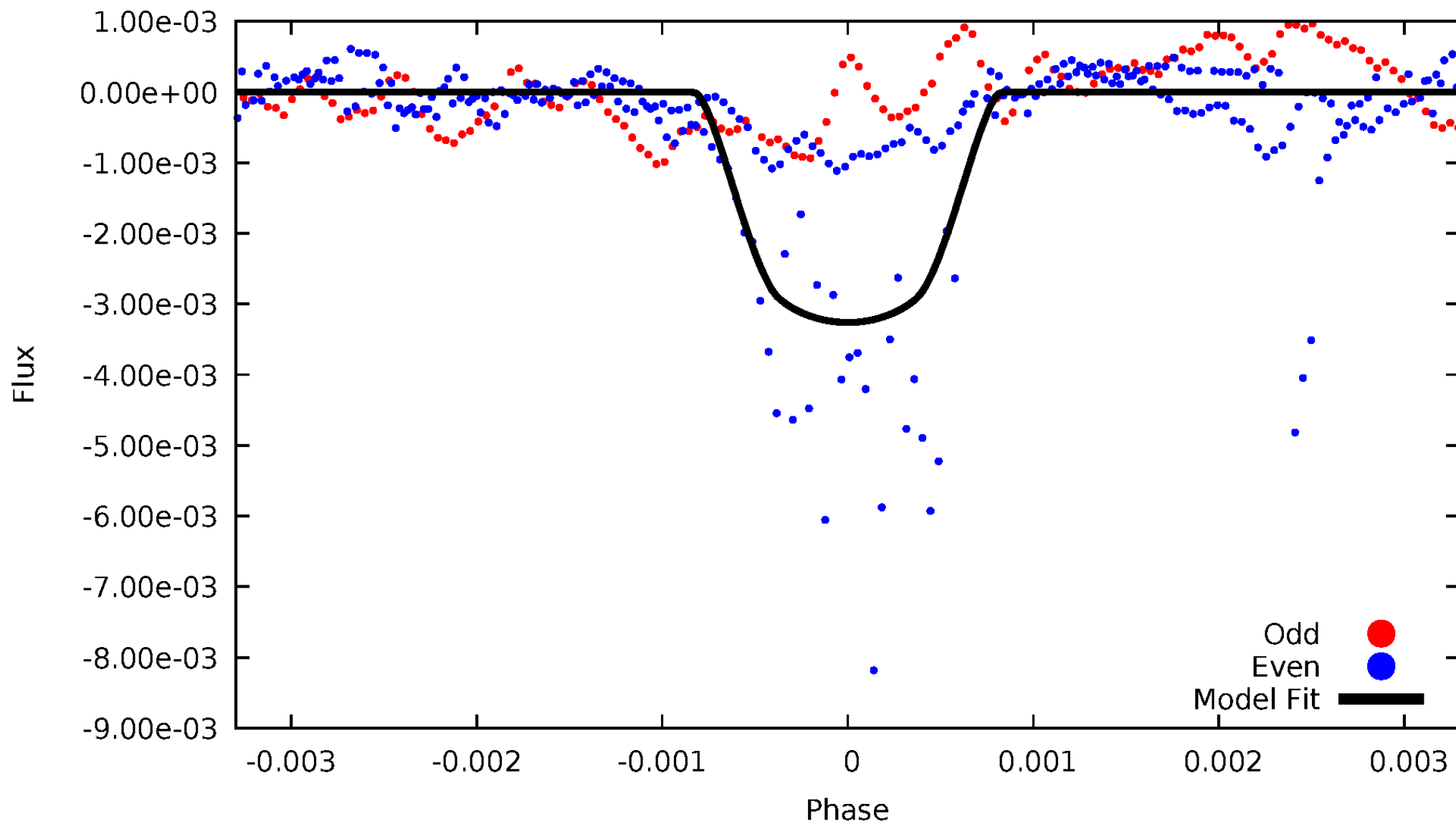


TCE 009291830-01



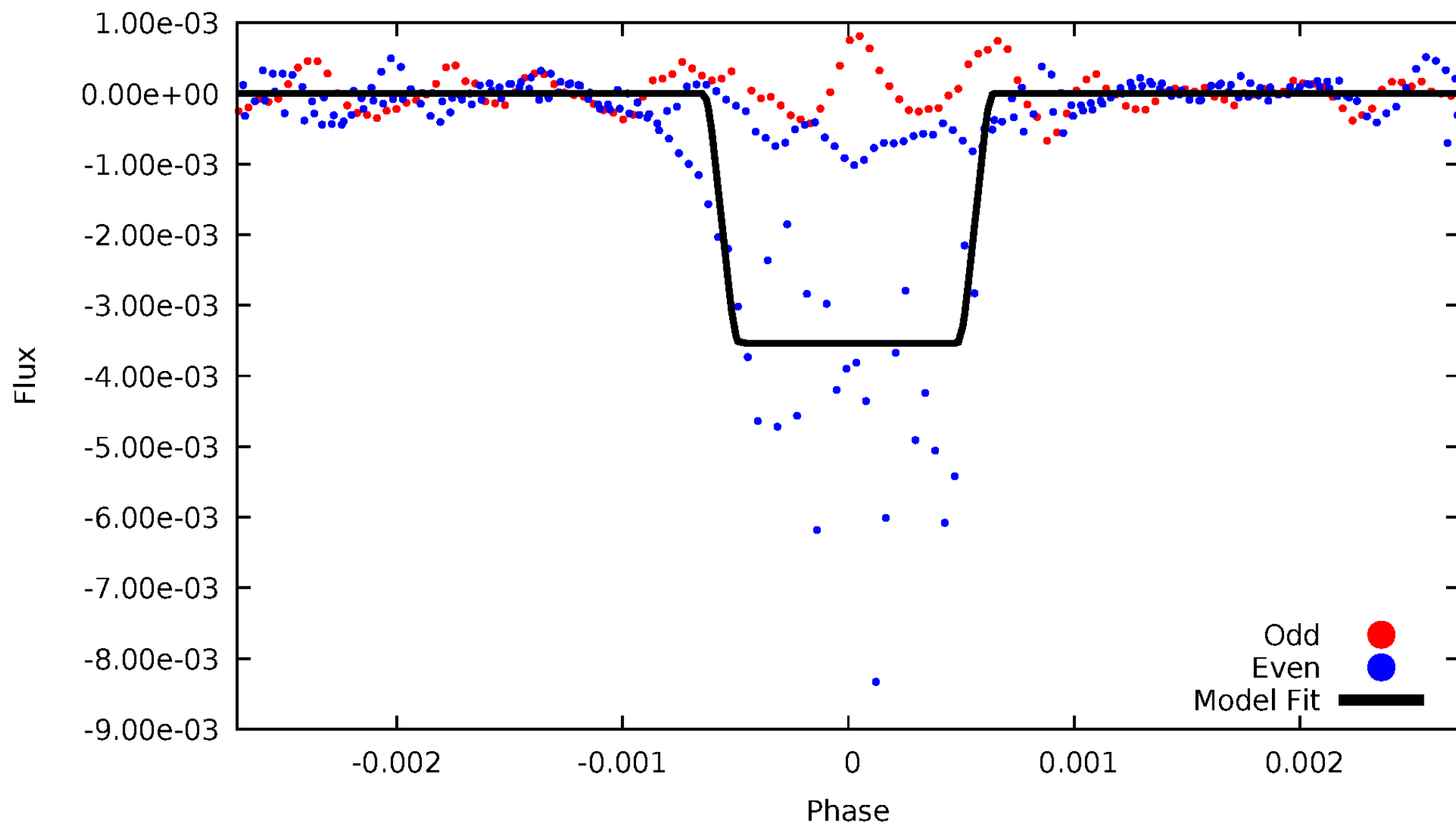
DV Odd/Even

TCE 009291830-01

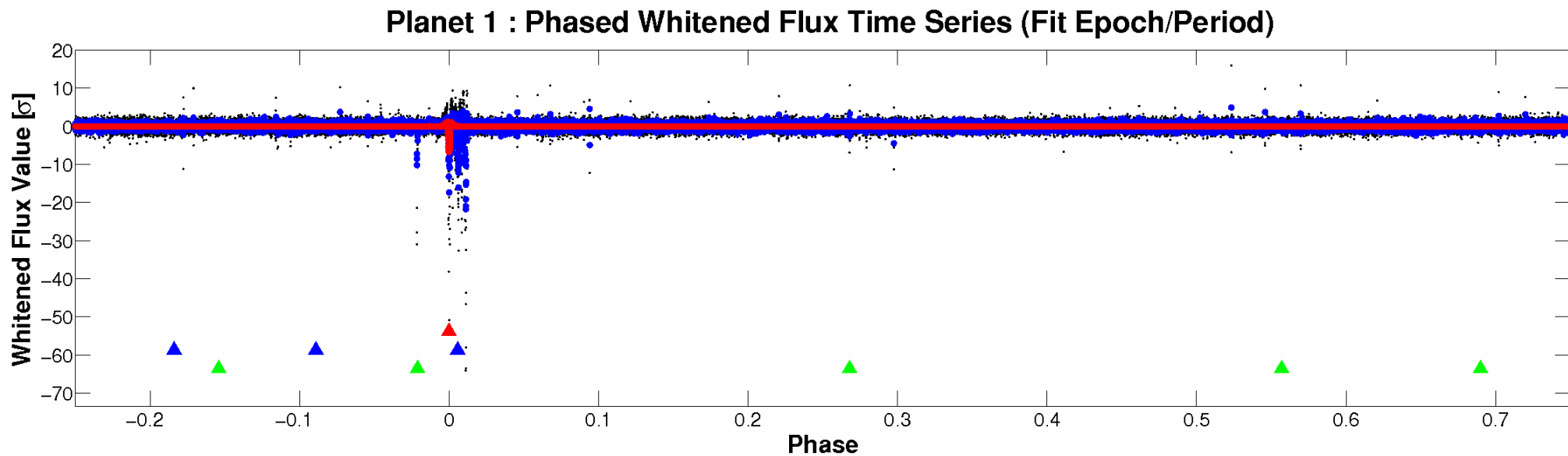
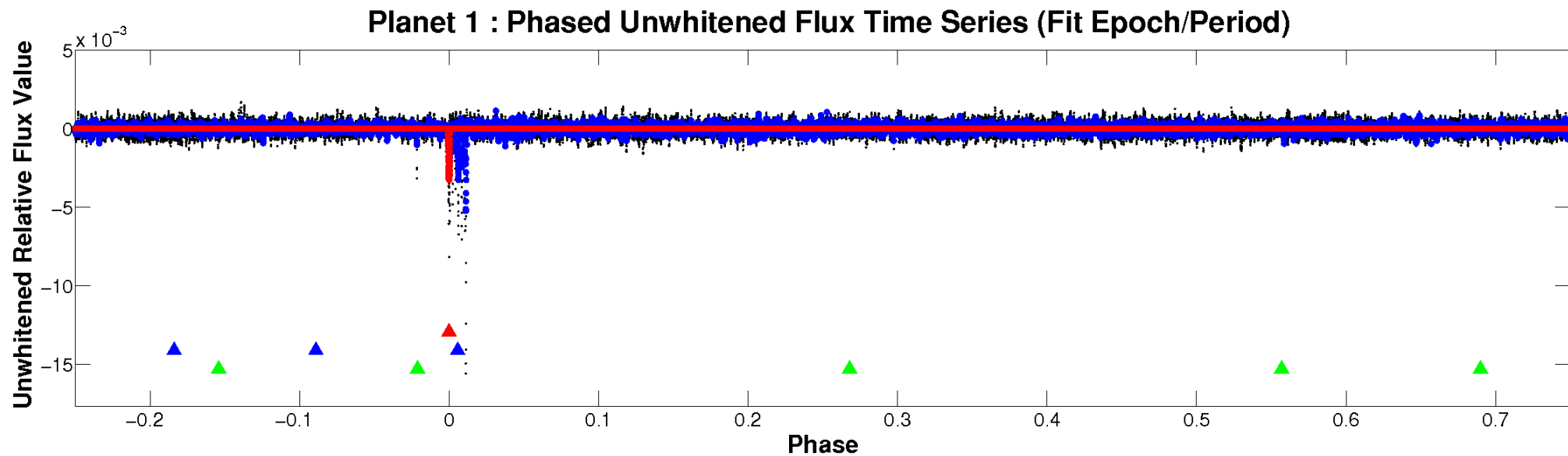


ALT Odd/Even

TCE 009291830-01

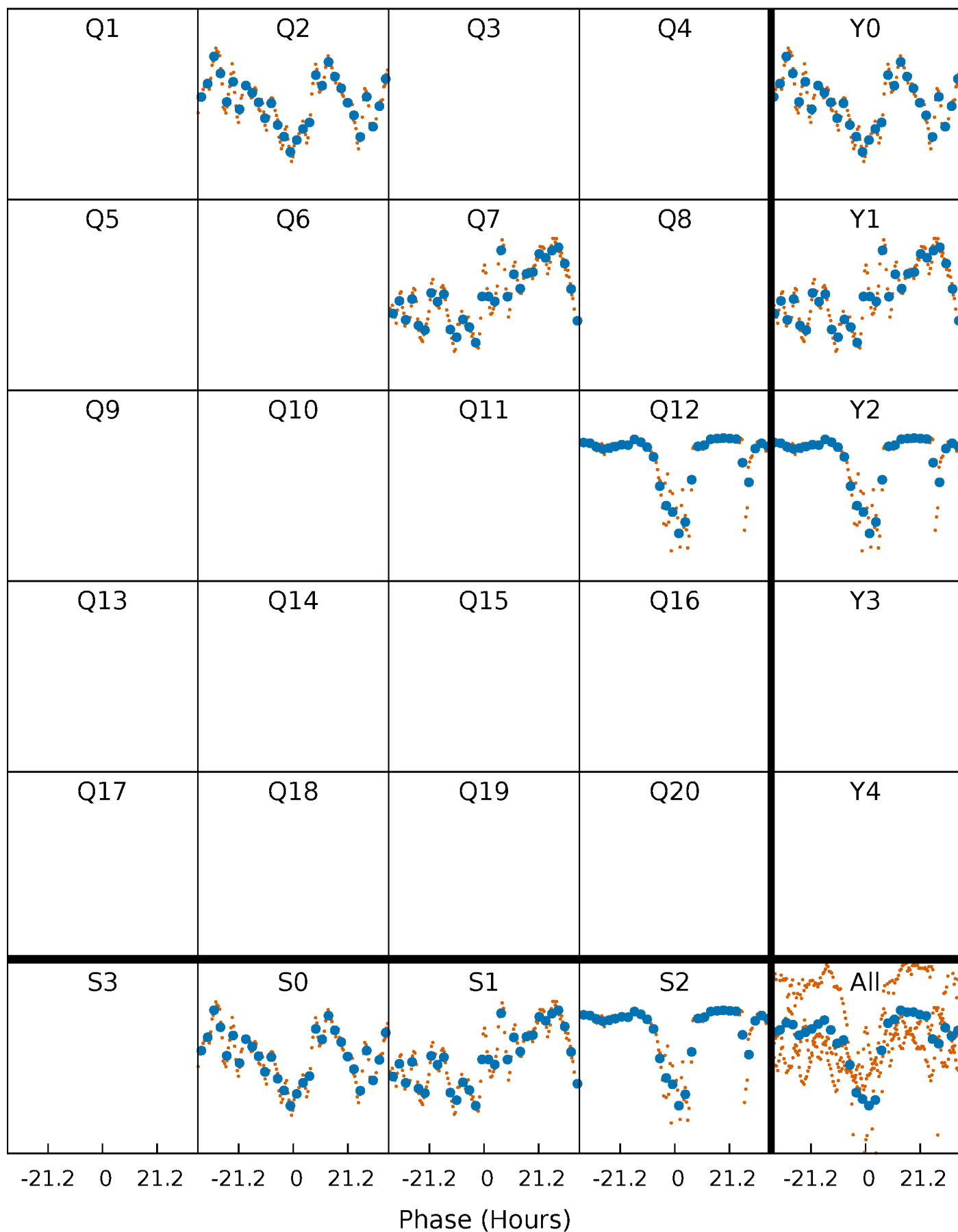


Non-Whitened Vs. Whitened Light Curve



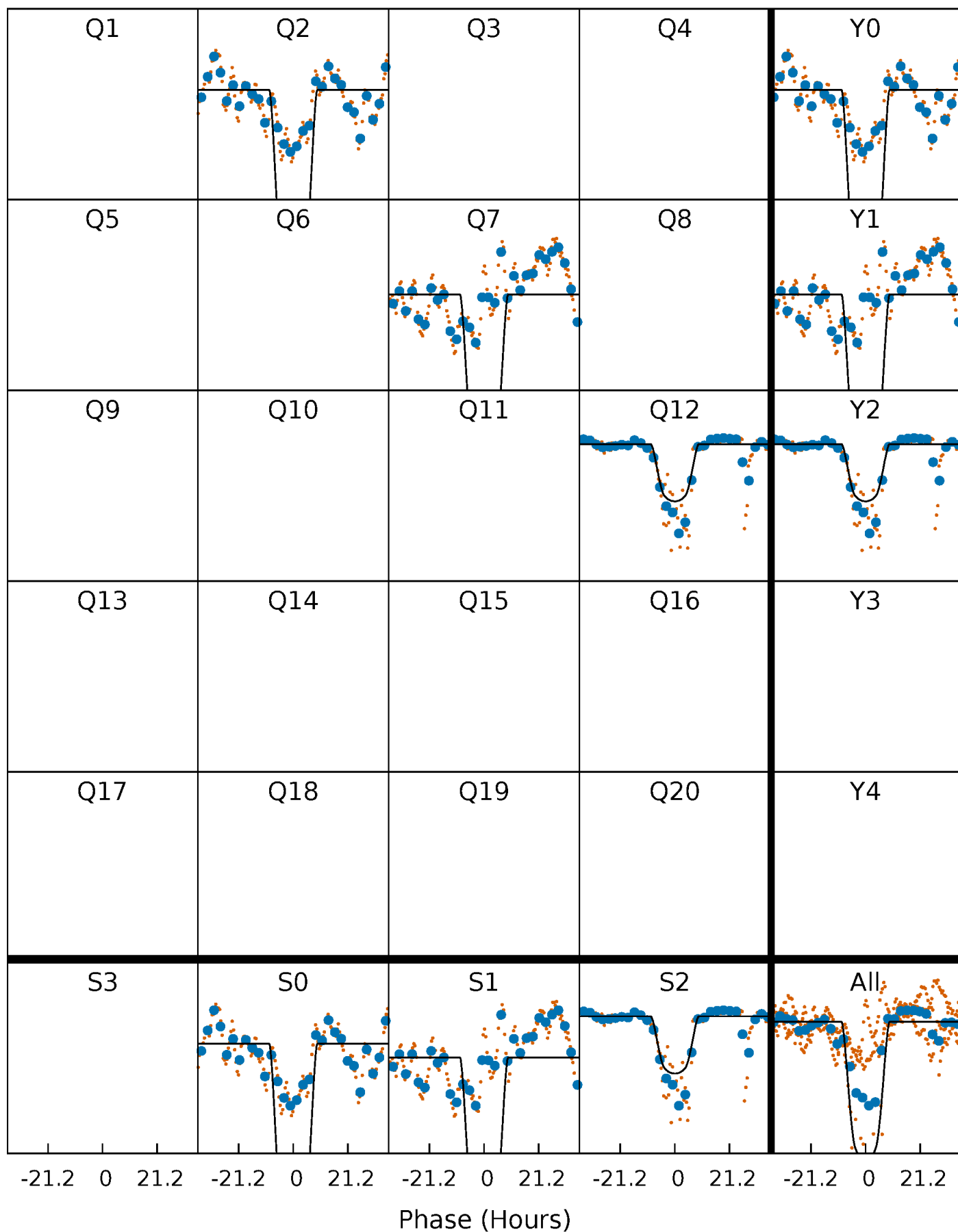
PDC Quarter-Phased Transit Curves

TCE 009291830-01 P=468.156357 Days $T_0=240.023615$ (BKJD)



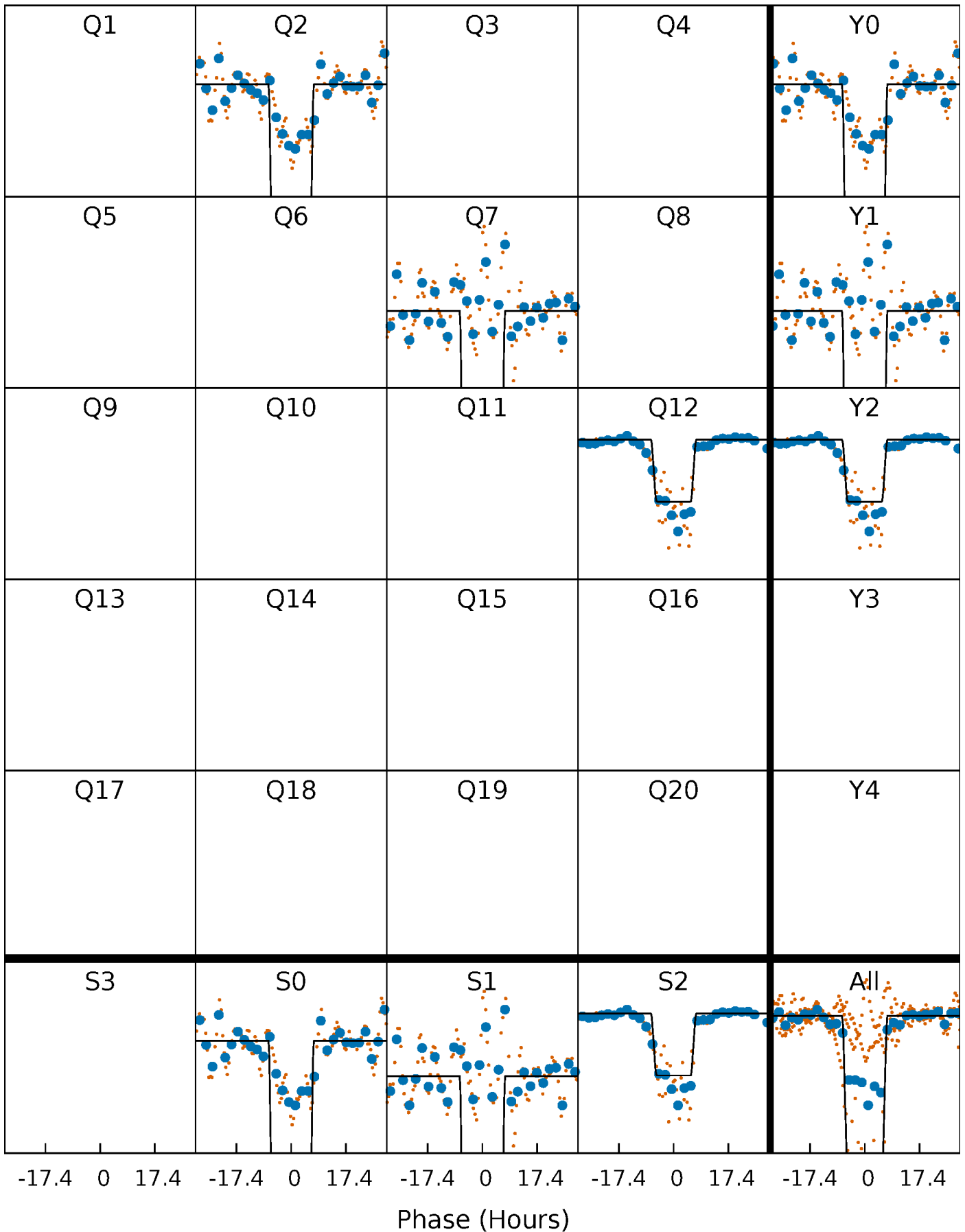
DV Quarter-Phased Transit Curves

TCE 009291830-01 P=468.156357 Days $T_0=240.023615$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

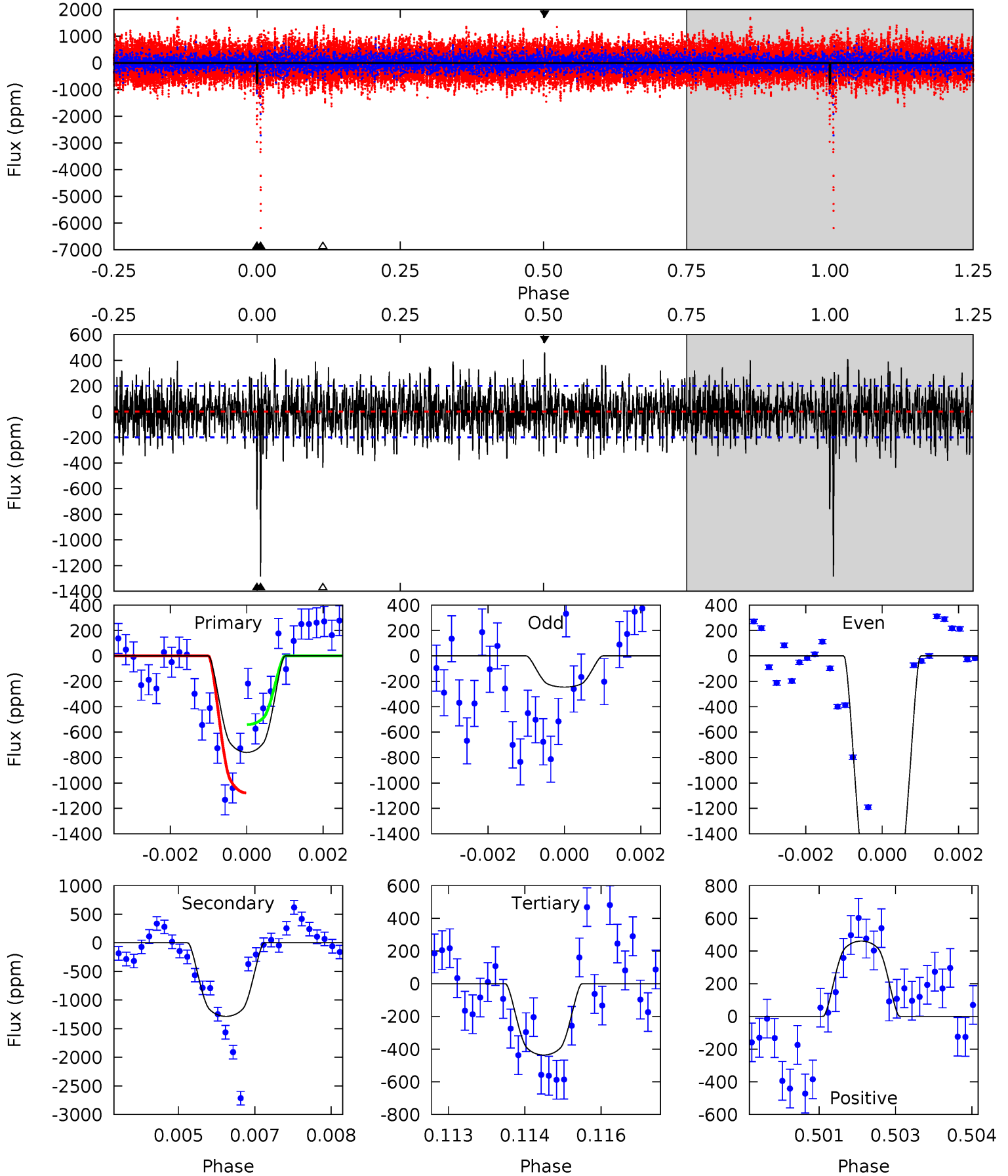
TCE 009291830-01 P=468.180538 Days $T_0=239.983759$ (BKJD)



DV Model-Shift Uniqueness Test

009291830-01, P = 468.156357 Days, E = 240.023615 Days

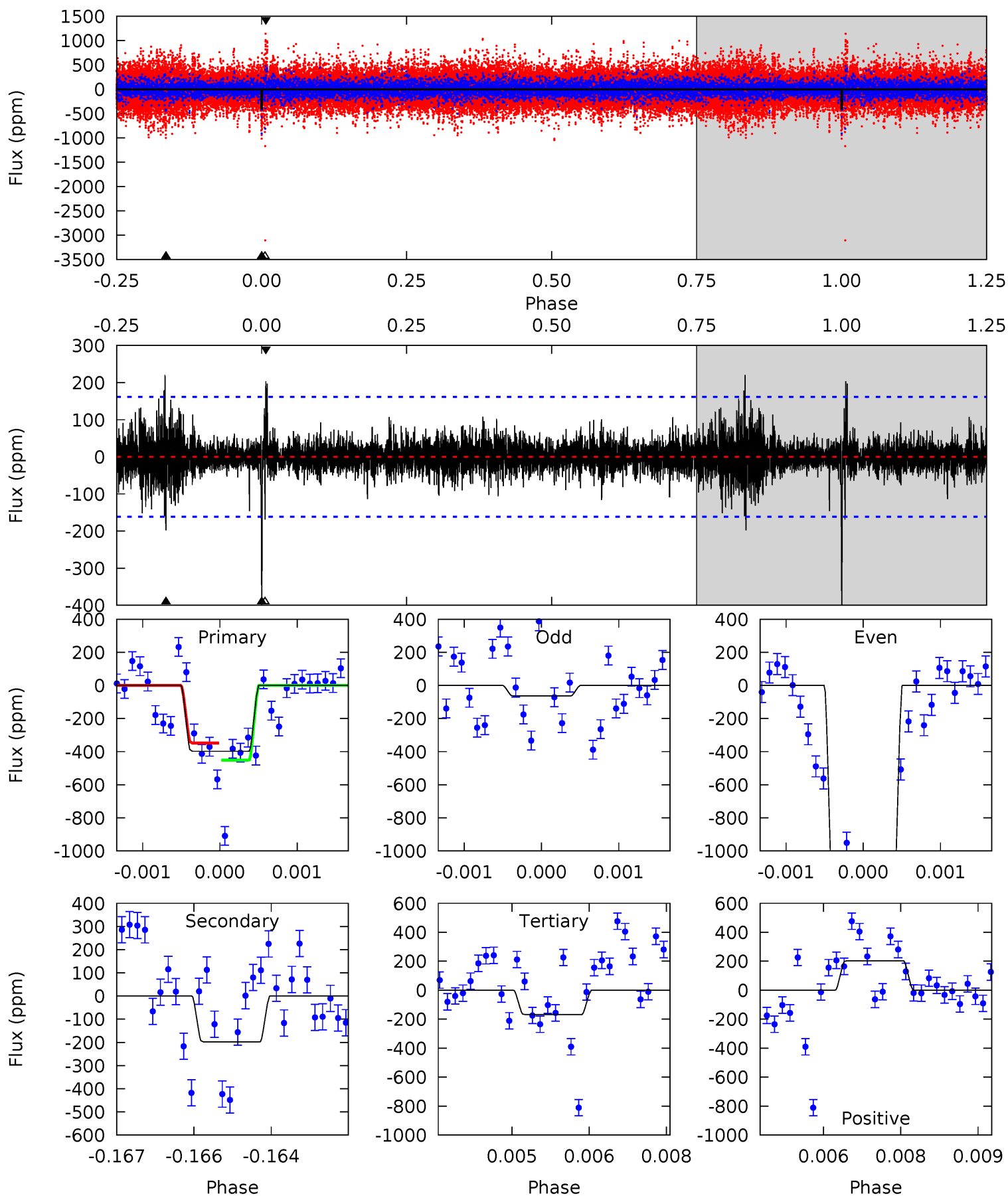
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	34.3	11.6	12.3	5.36	3.15	3.43	8.61	7.95	22.6	22.0	23.4	2.07	0.26	7.12



Alt Model-Shift Uniqueness Test

009291830-01, P = 468.180538 Days, E = 239.983759 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.3	6.63	5.64	6.81	5.41	3.22	1.14	7.68	6.52	0.99	-0.18	28.2	2.57	0.36	0



Stellar Parameters For KIC 009291830

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5038^{+12}_{-163}	$2.564^{+0.033}_{-0.027}$	$0.070^{+0.050}_{-0.300}$	$15.394^{+0.631}_{-1.473}$	$3.167^{+0.050}_{-0.504}$	$0.001^{+0.000}_{-0.000}$
	+0%/-3%	+1%/-1%	+71%/-429%	+4%/-10%	+2%/-16%	+21%/-9%
Source	PHO55	AST55	SPE55	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009291830-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1285 ± 38	$106.71^{+3.84}_{-5.54}$	918^{+16}_{-25}	4011^{+48}_{-92}	187^{+16}_{-13}
Alt.	-198 ± 30	$100.11^{+3.53}_{-4.55}$	918^{+15}_{-27}	3031^{+72}_{-87}	33^{+5}_{-5}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

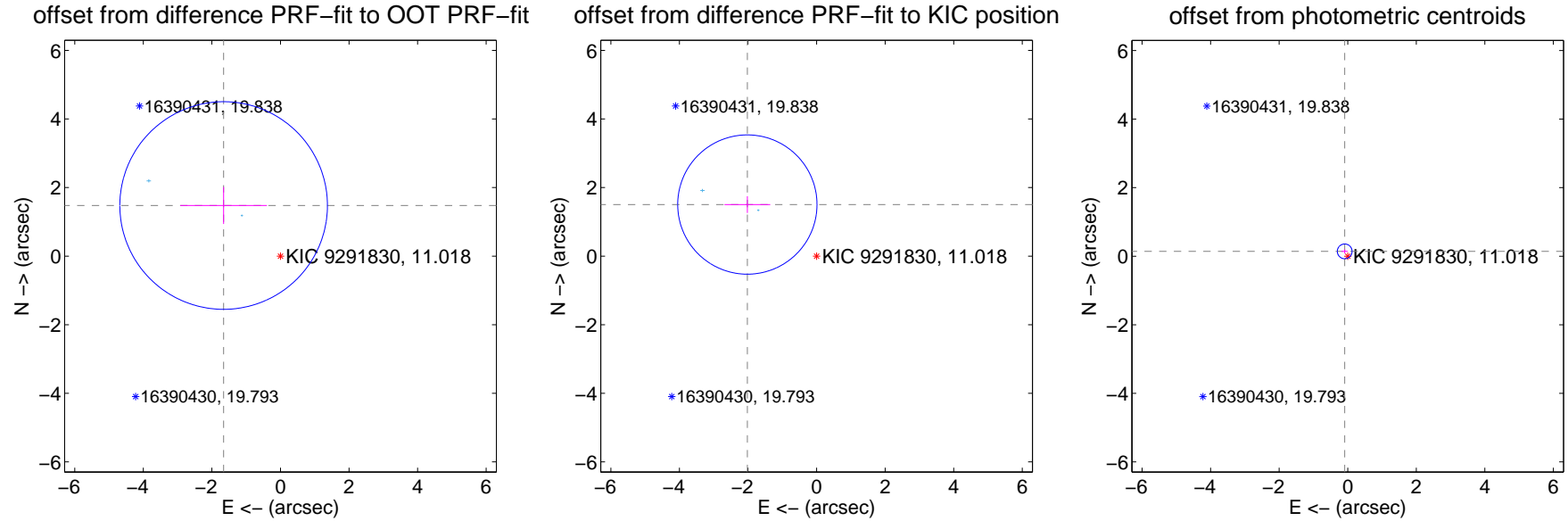
DV Centroid Data

Supplemental centroid analysis for 009291830-01. **Kepler magnitude: 11.02.** Transit SNR 43.06

There are 2 quarters with good PRF difference image offsets

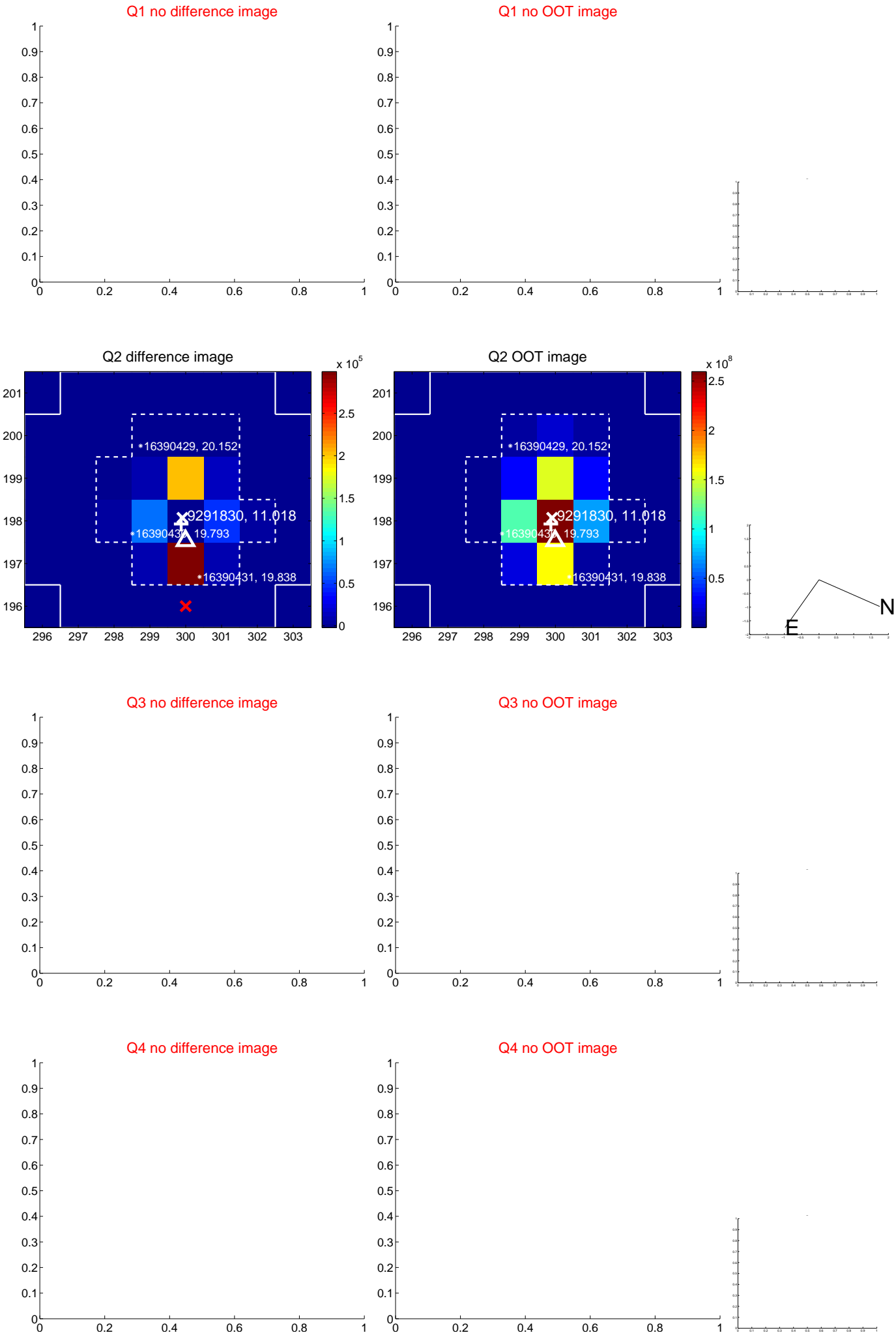
The direct PRF centroid is offset from the target star catalog position by about 0.58 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.219 ± 1.009	2.20	1.658 ± 1.263	1.476 ± 0.540
PRF-fit source offset from KIC position	2.518 ± 0.677	3.72	2.019 ± 0.669	1.504 ± 0.244
photometric centroid source offset	0.17 ± 0.07	2.31	0.09 ± 0.09	0.14 ± 0.06

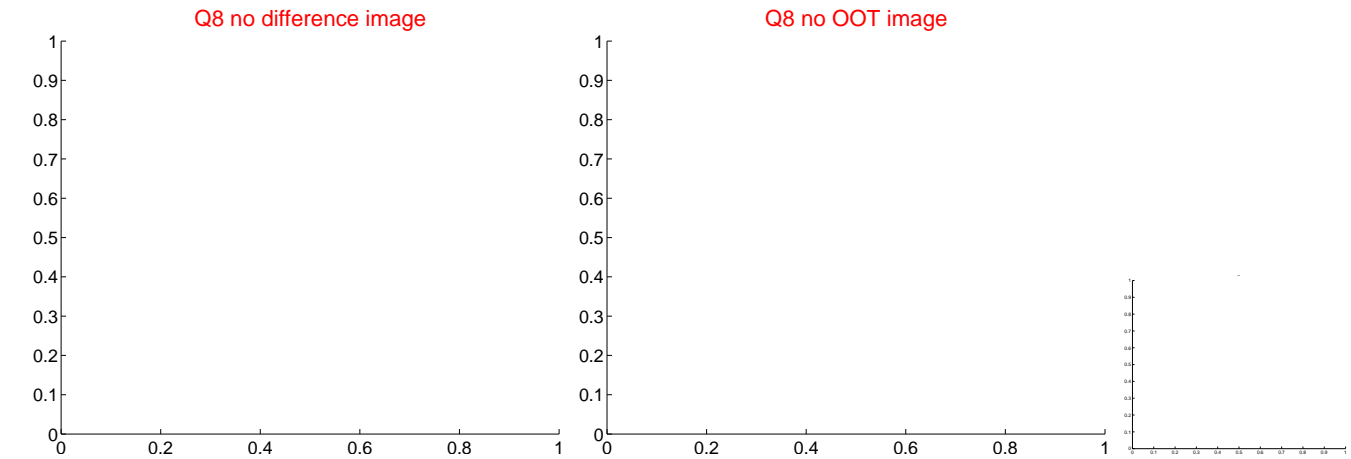
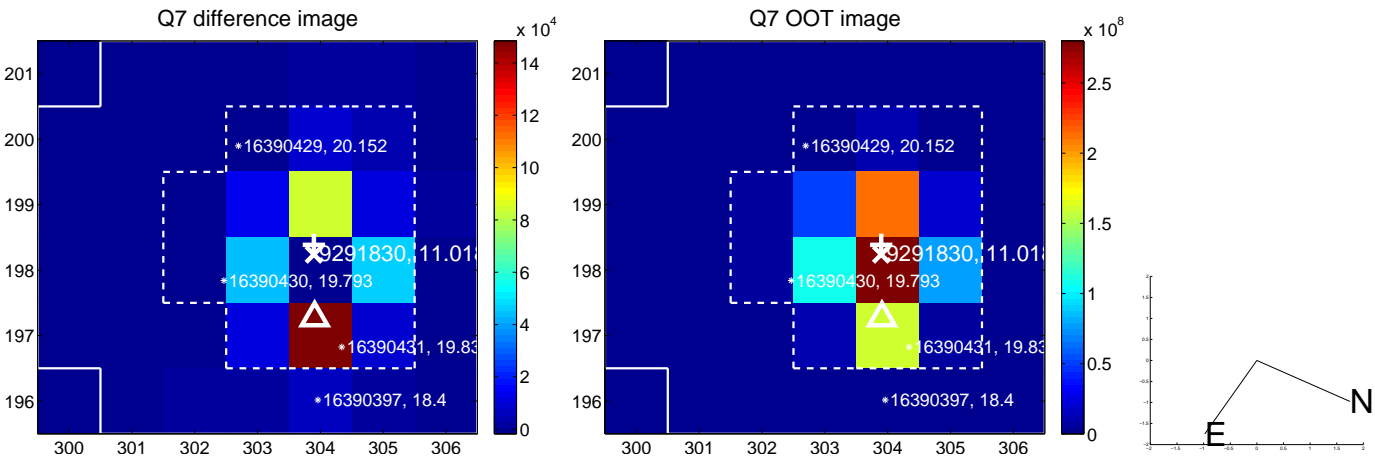
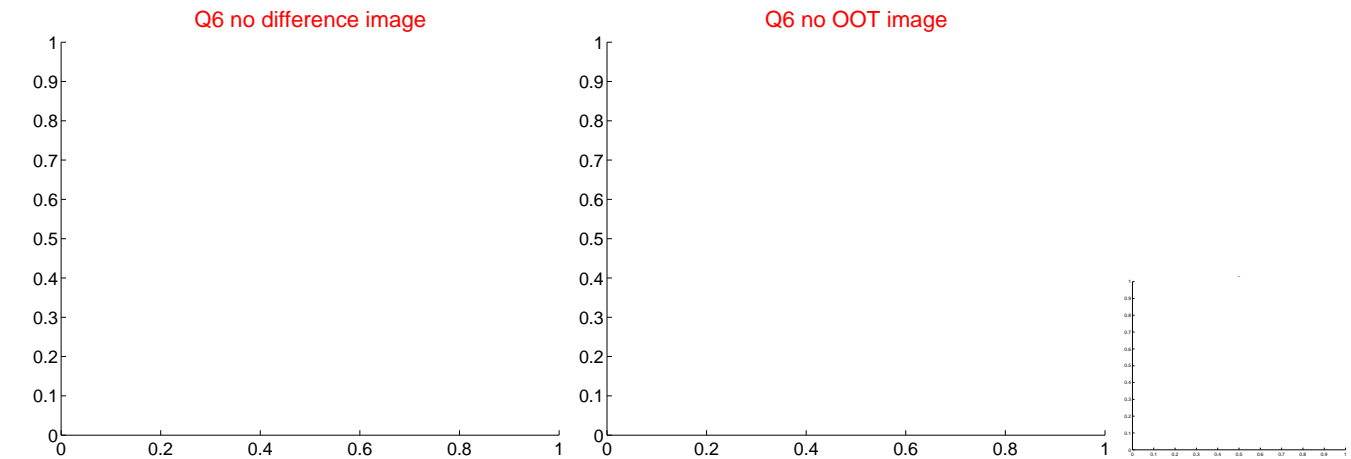
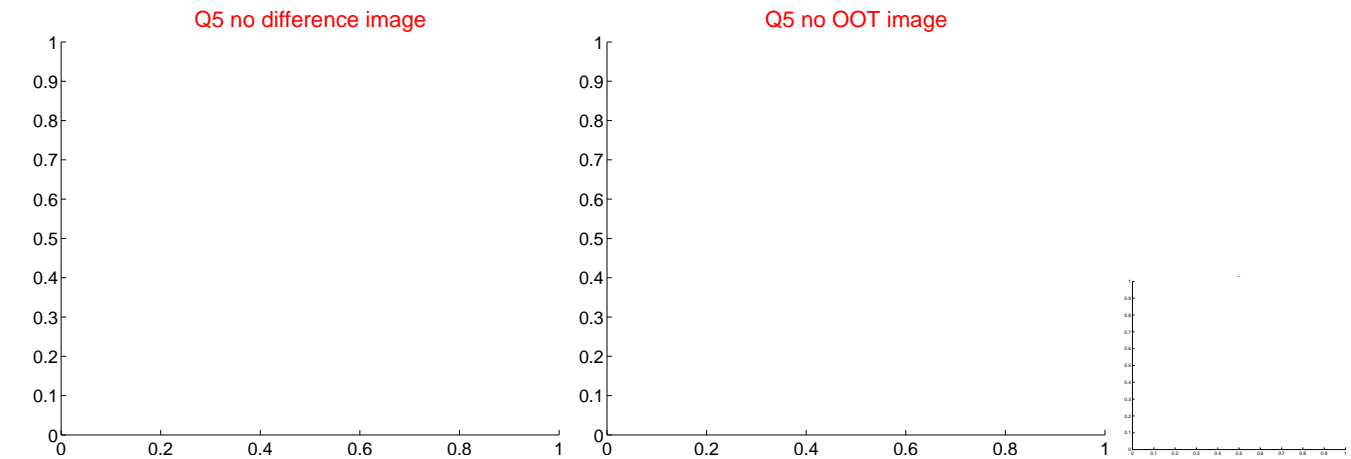


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



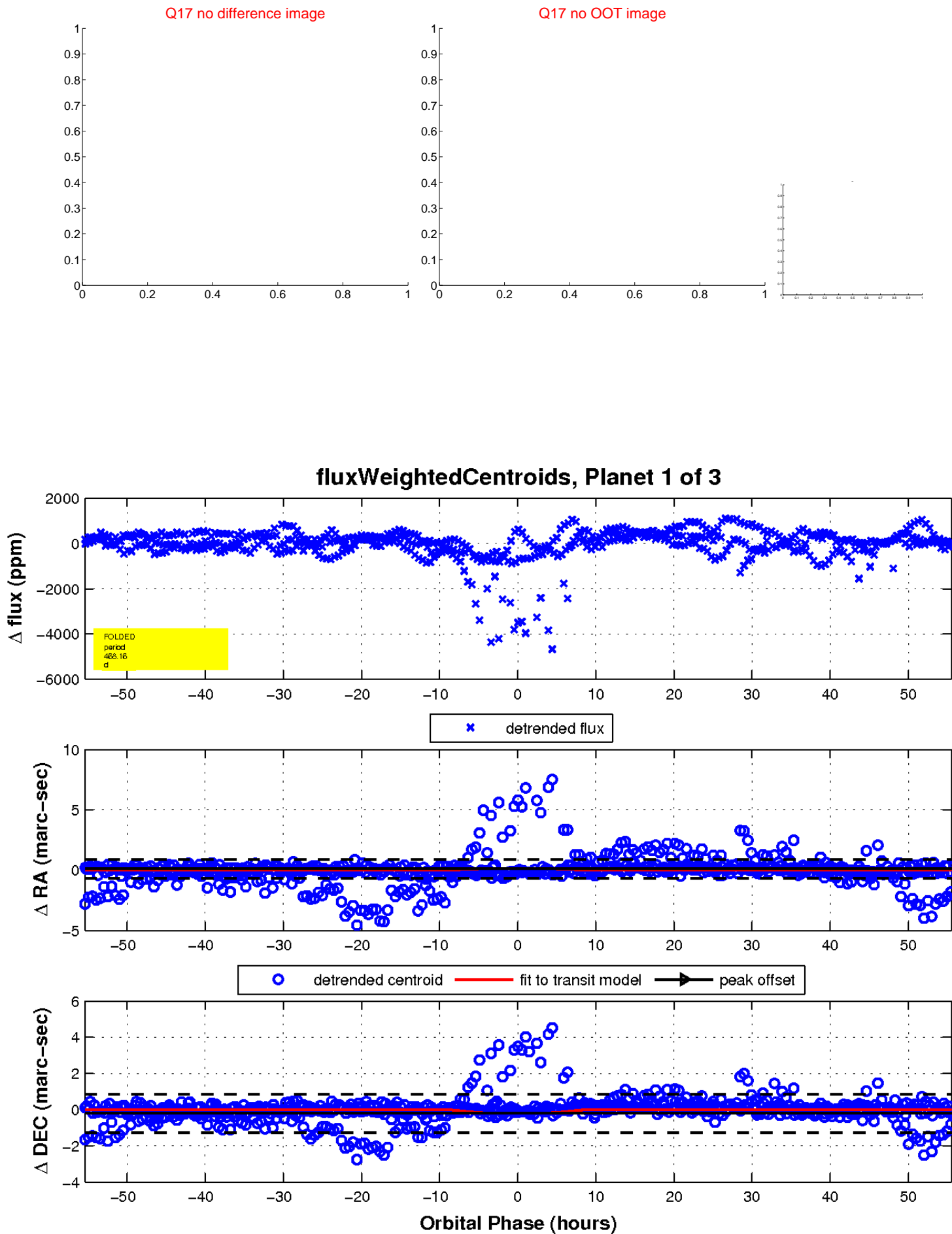
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

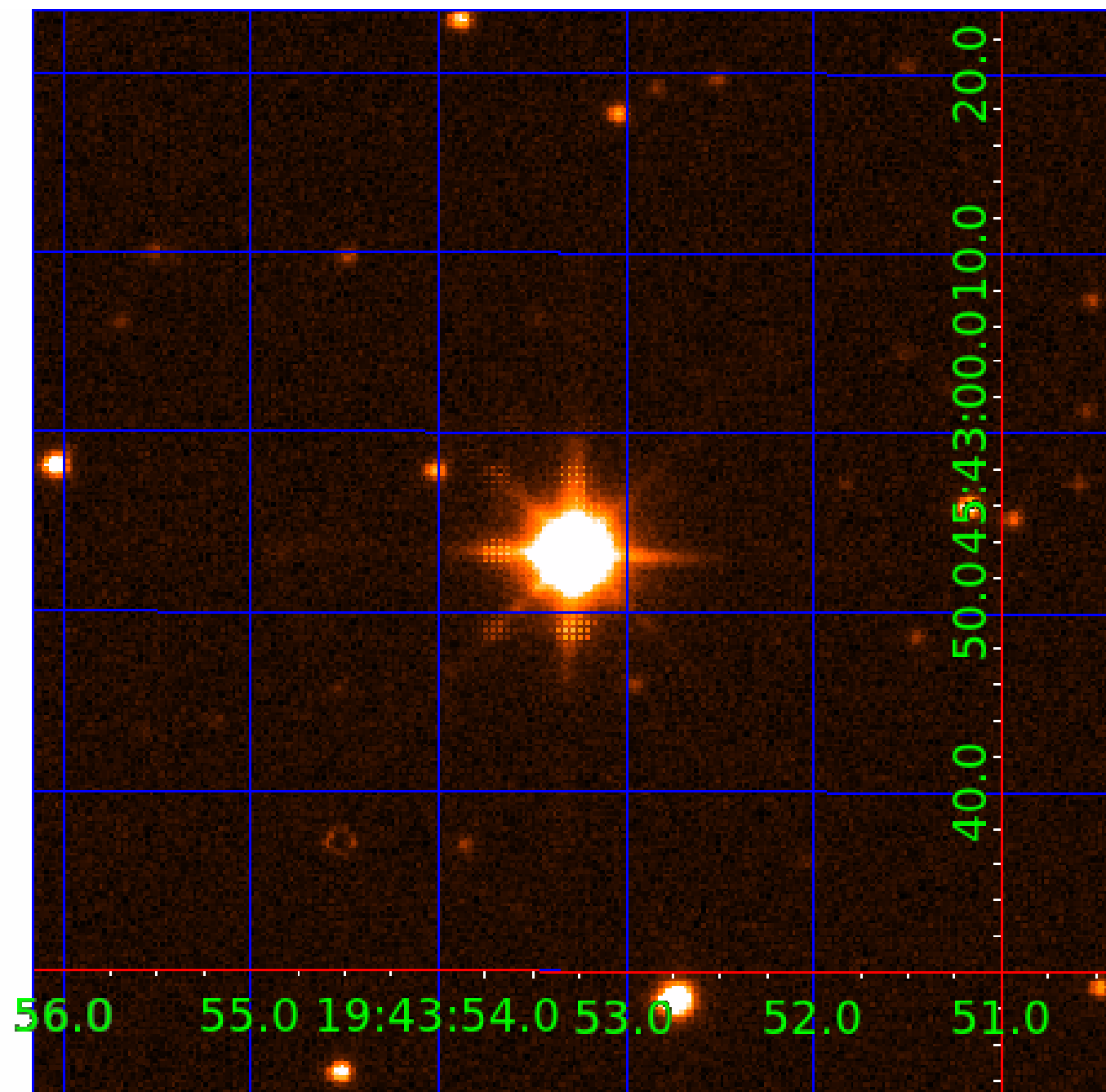


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291830

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009291830-01	OBS	No	468.156357	240.023615	3260.4	18.518	104.4	43.1	15.39	5038	106.84	45.53
009291830-02	OBS	No	512.559043	153.942254	2441.3	20.181	52.1	37.2	15.39	5038	93.44	40.35
009291830-03	OBS	No	332.861037	167.893415	179.2	16.221	9.6	3.1	15.39	5038	20.61	71.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291830-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009291830-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009291830-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

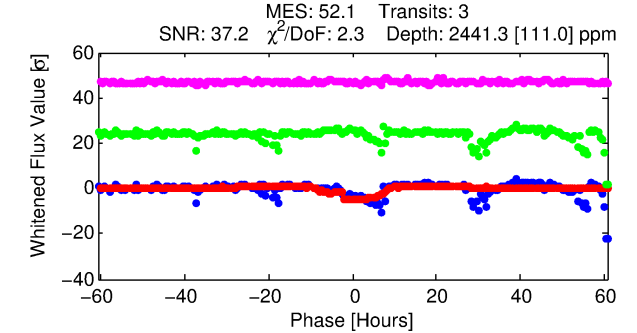
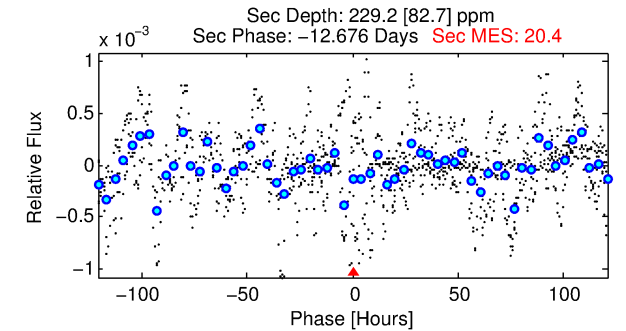
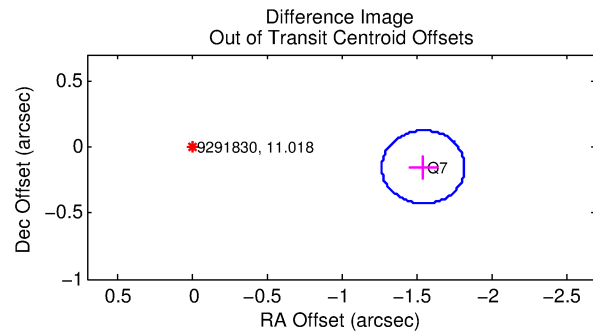
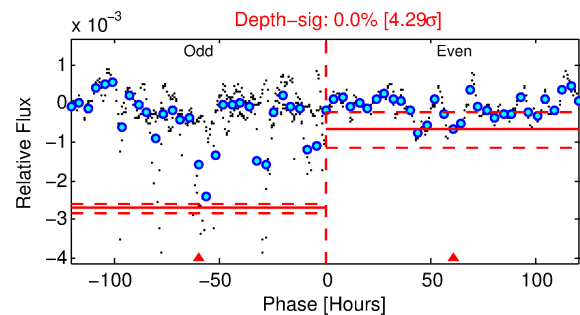
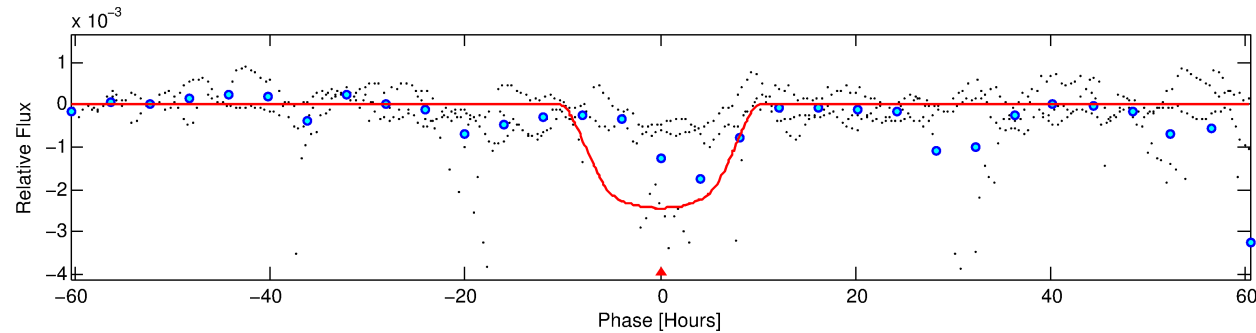
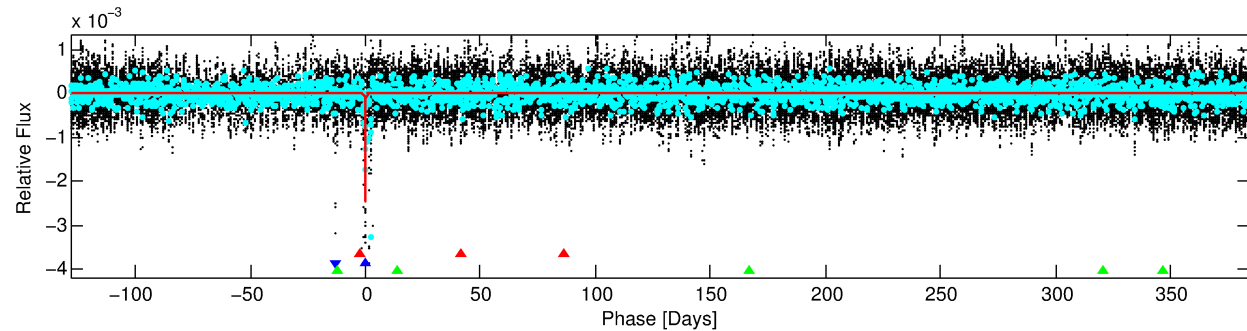
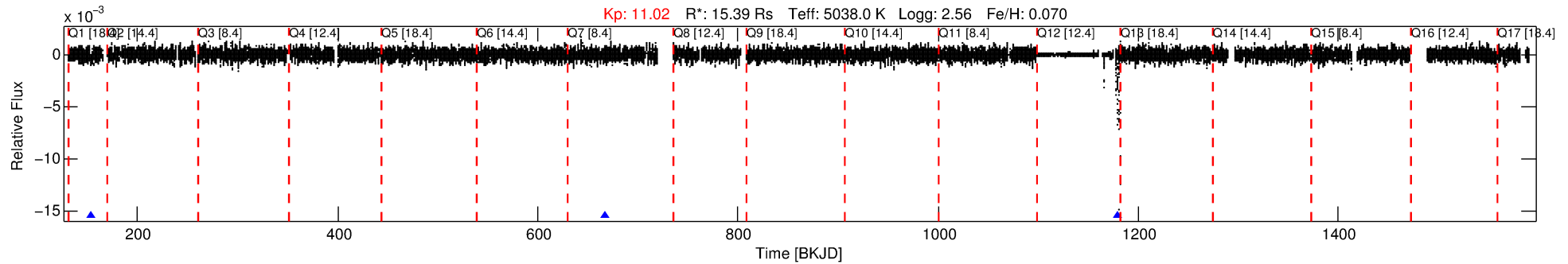
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009291830-02

No Significant Match Found

DV One-Page Summary

KIC: 9291830 Candidate: 2 of 3 Period: 512.559 d



DV Fit Results:

Period = 512.55904 [0.01344] d
Epoch = 153.9423 [0.0235] BKJD
Rp/R* = 0.0556 [0.0021]
a/R* = 104.65 [9.09]
b = 0.91 [0.02]
Seff = 40.35 [6.17]
Teq = 643 [25] K
Rp = 93.44 [9.63] Re
a = 1.8412 [0.1264] AU
Ag = 48.96 [18.49] [2.59 σ]
Teffp = 2628 [257] K [7.70 σ]

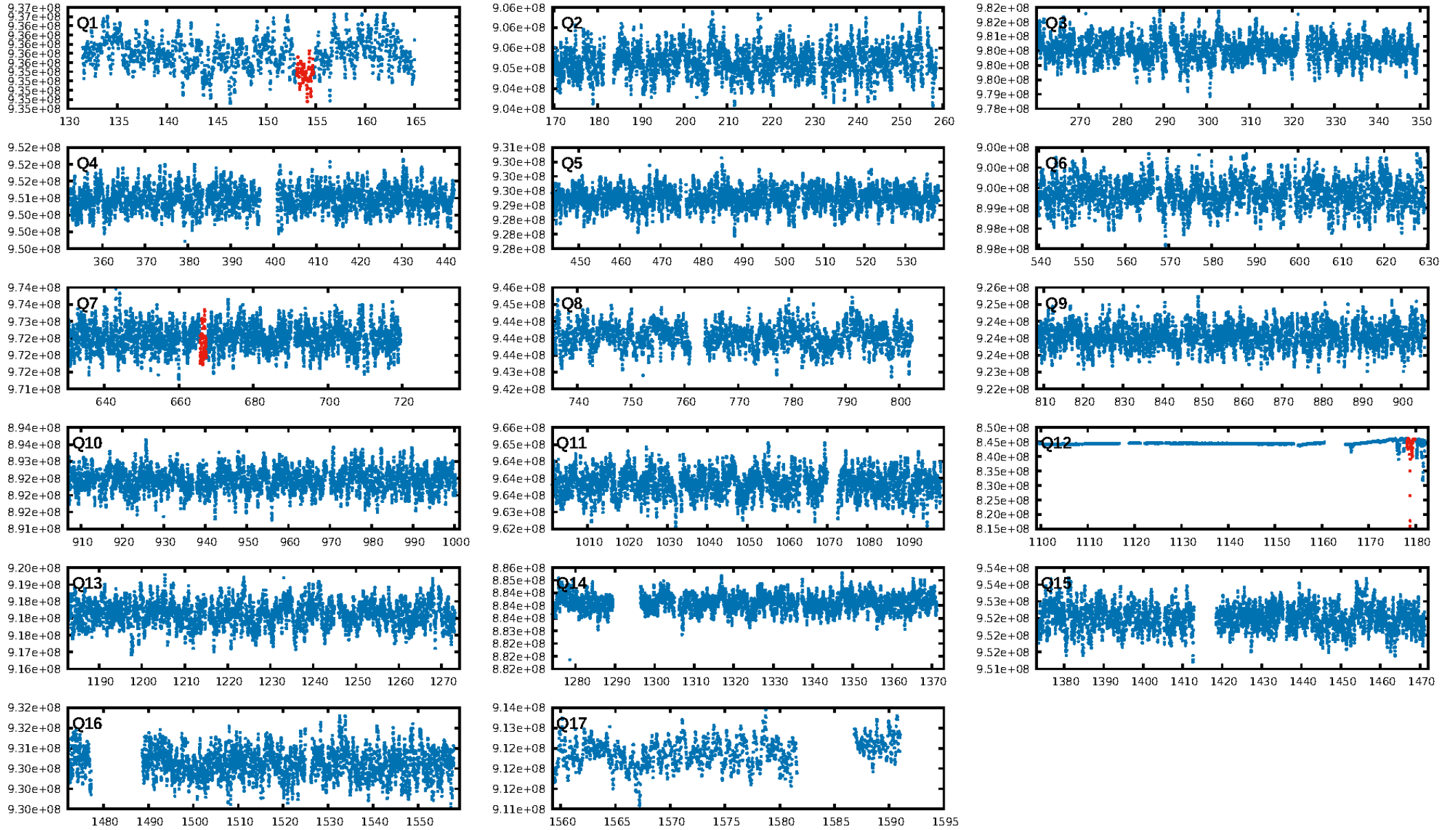
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.91 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.1%
Bootstrap-pfa: 7.14e-134
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.1671
Centroid-sig: 97.4%
Centroid-so: 0.160 arcsec [1.59 σ]
OotOffset-rm: 1.554 arcsec [16.84 σ]
KicOffset-rm: 2.175 arcsec [23.64 σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
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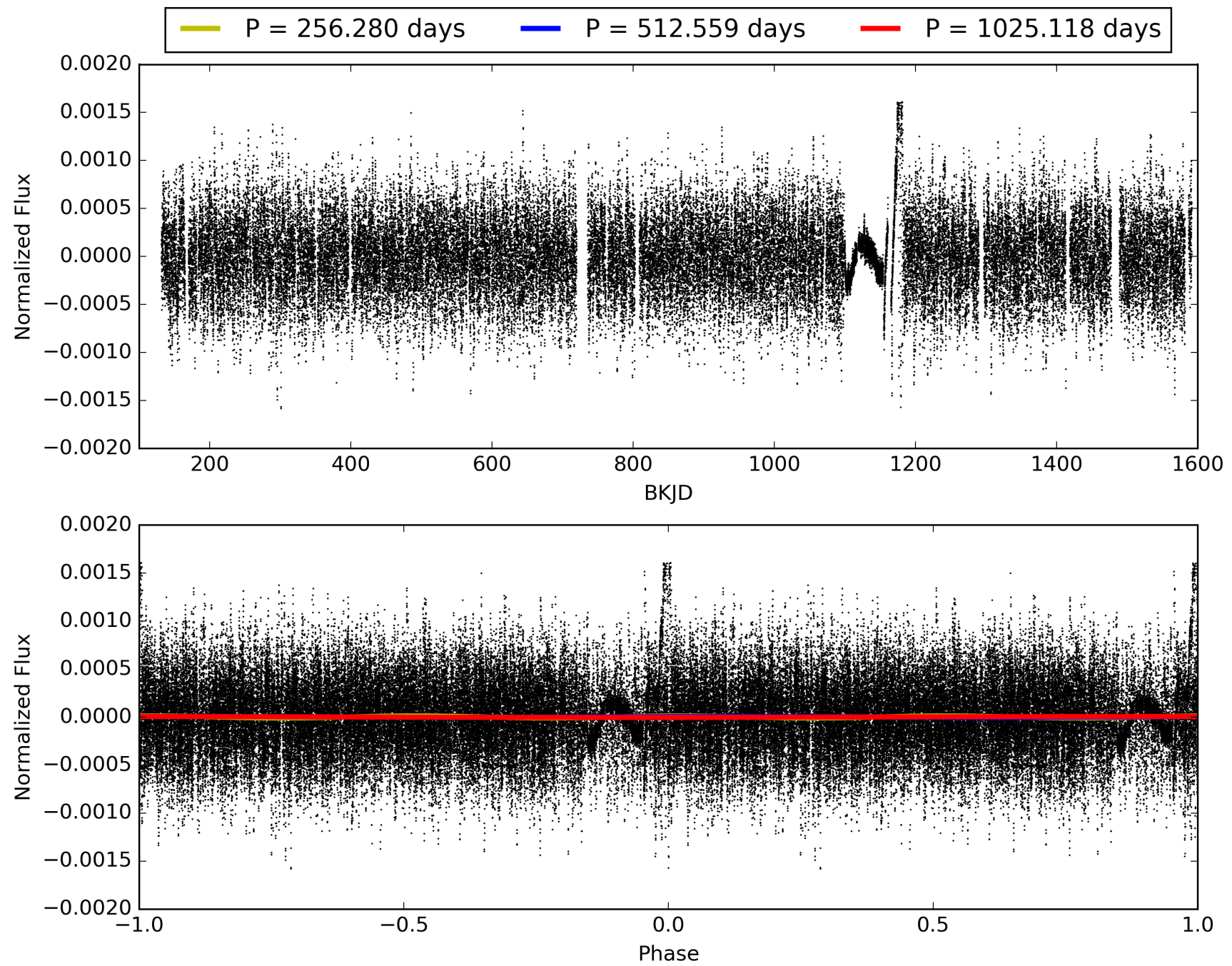
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 03:56:36 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009291830-02, PDC Light Curves

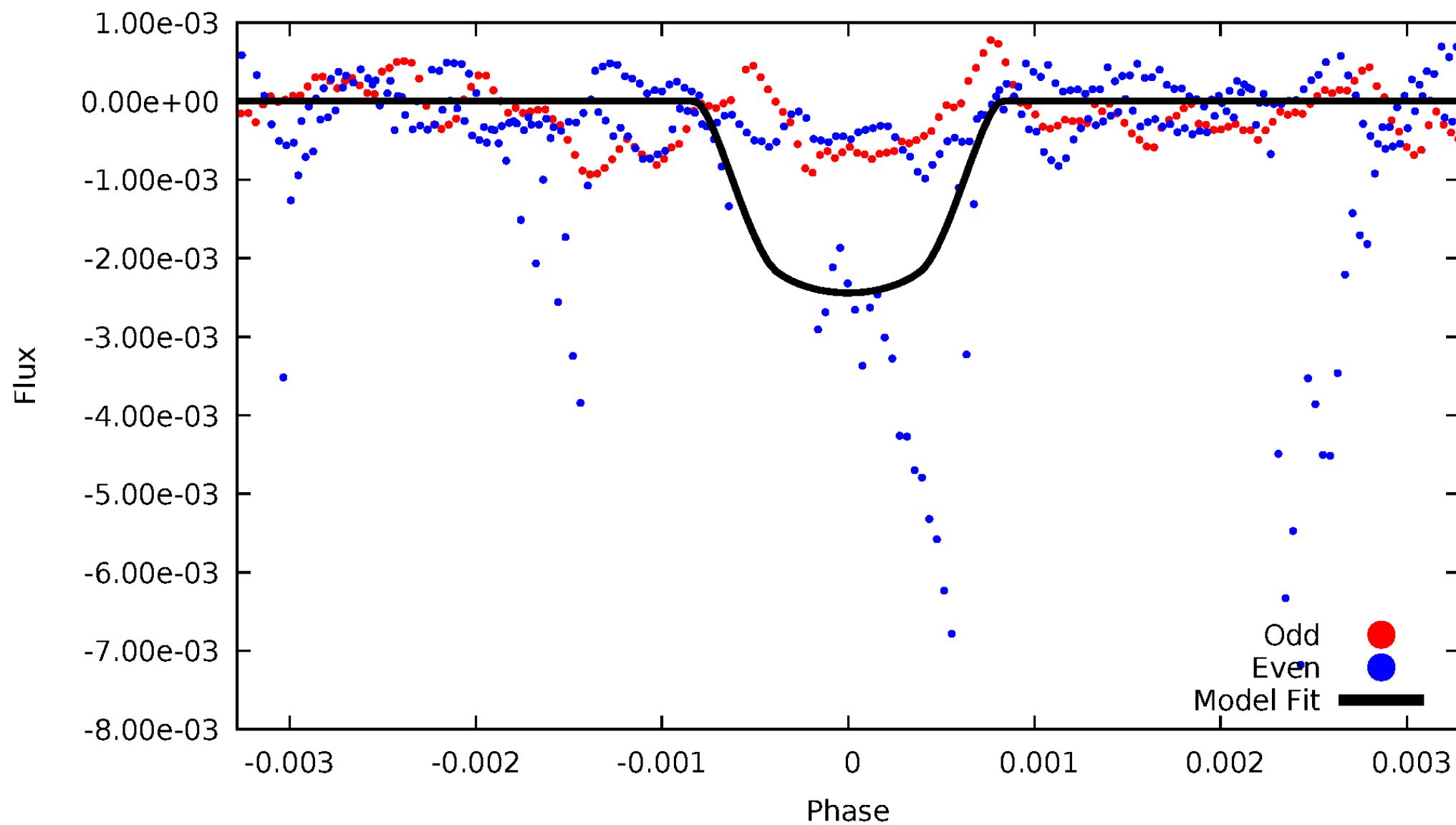


TCE 009291830-02



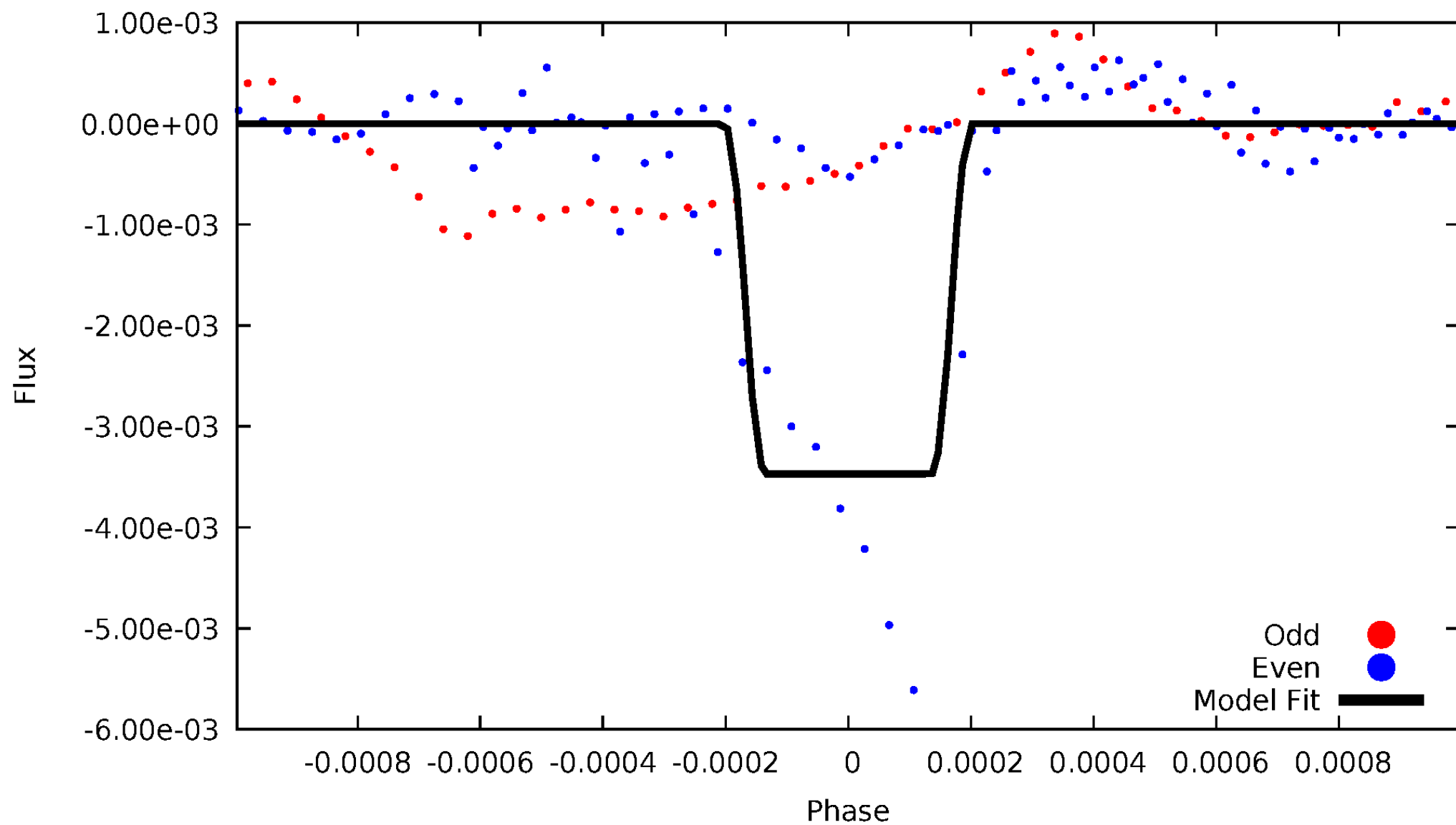
DV Odd/Even

TCE 009291830-02



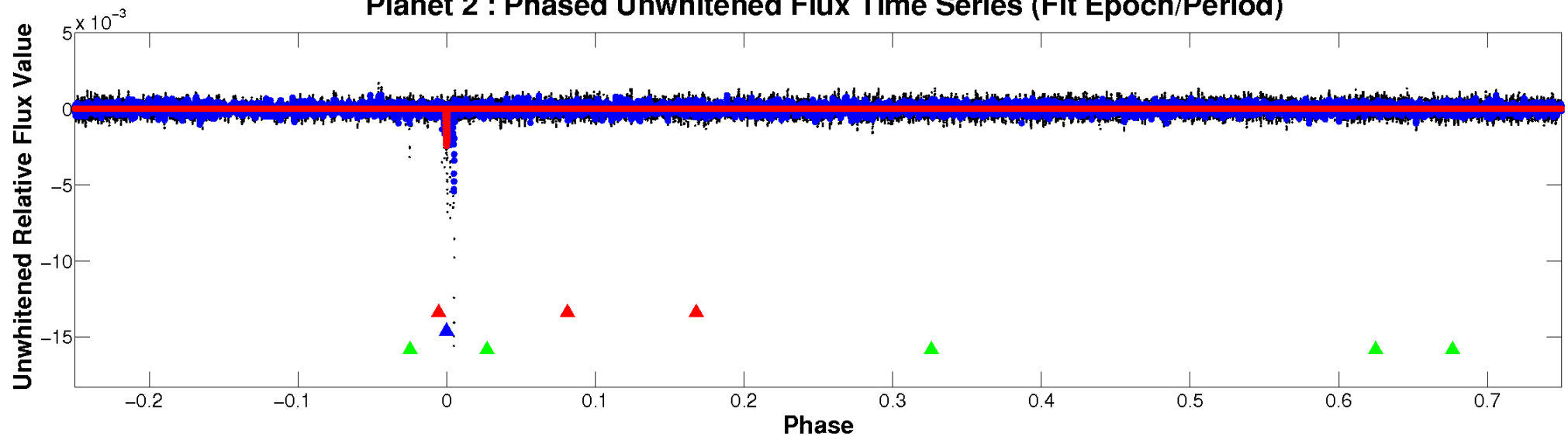
ALT Odd/Even

TCE 009291830-02

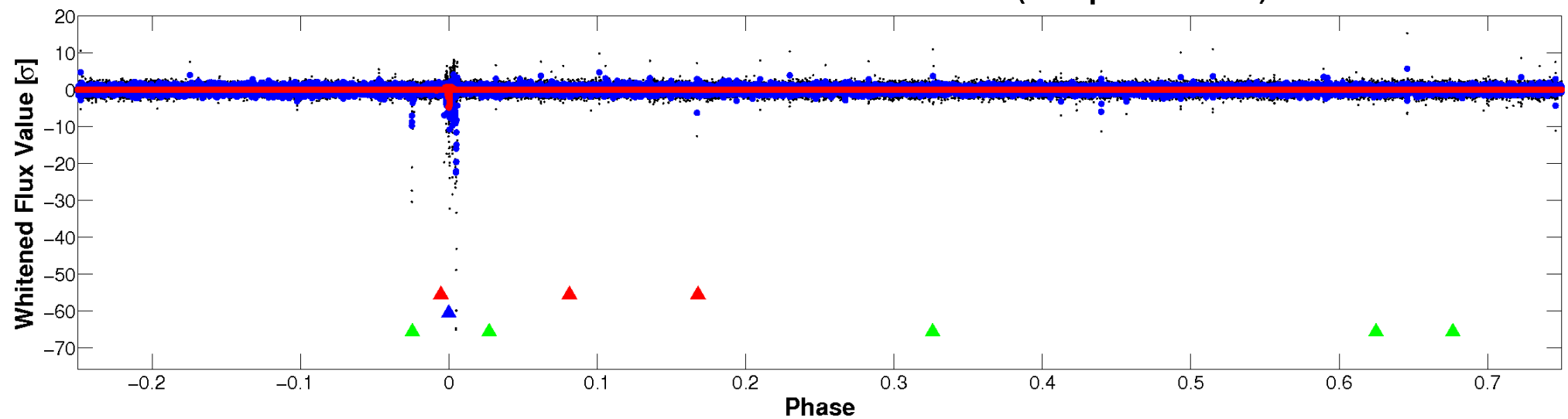


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

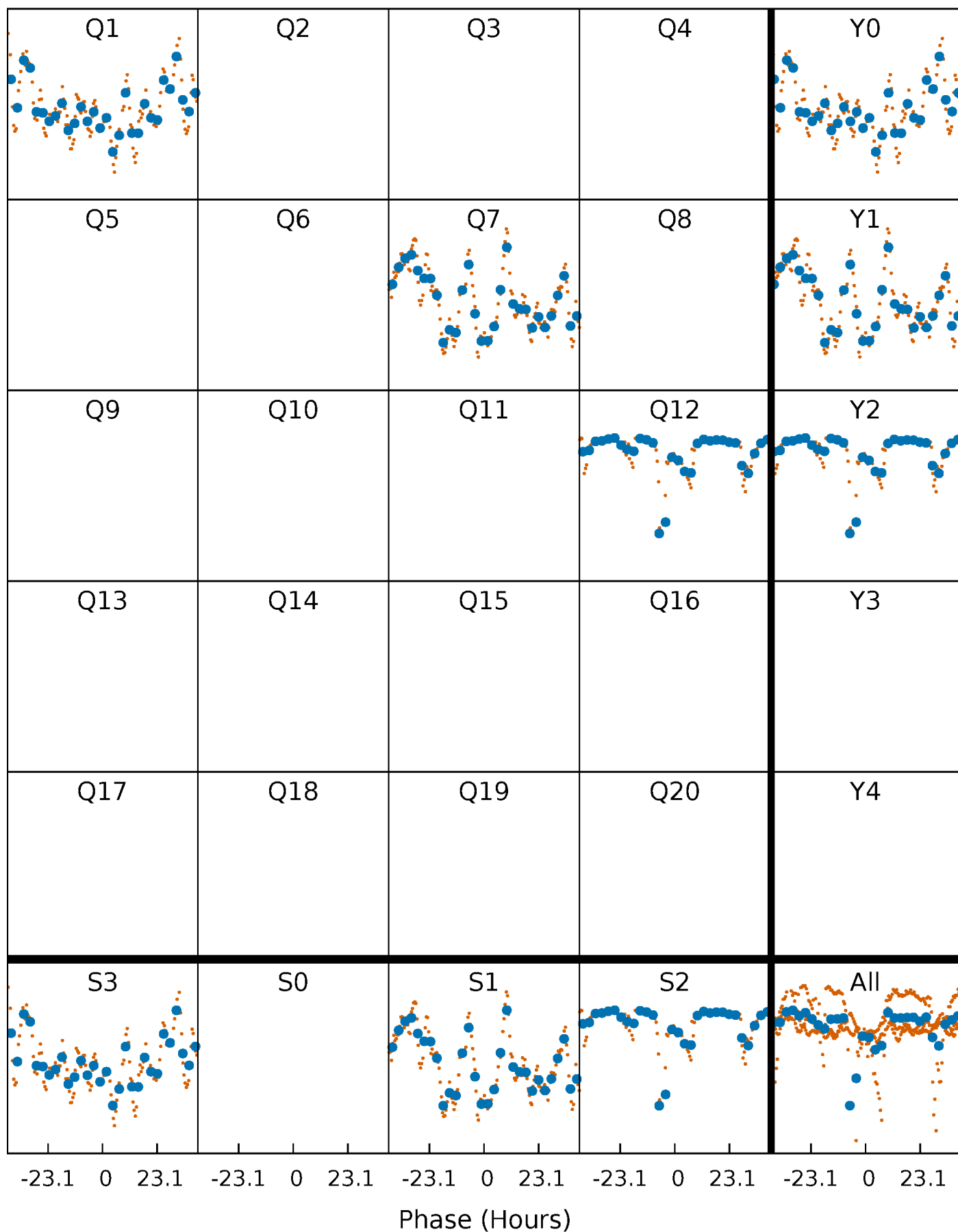


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



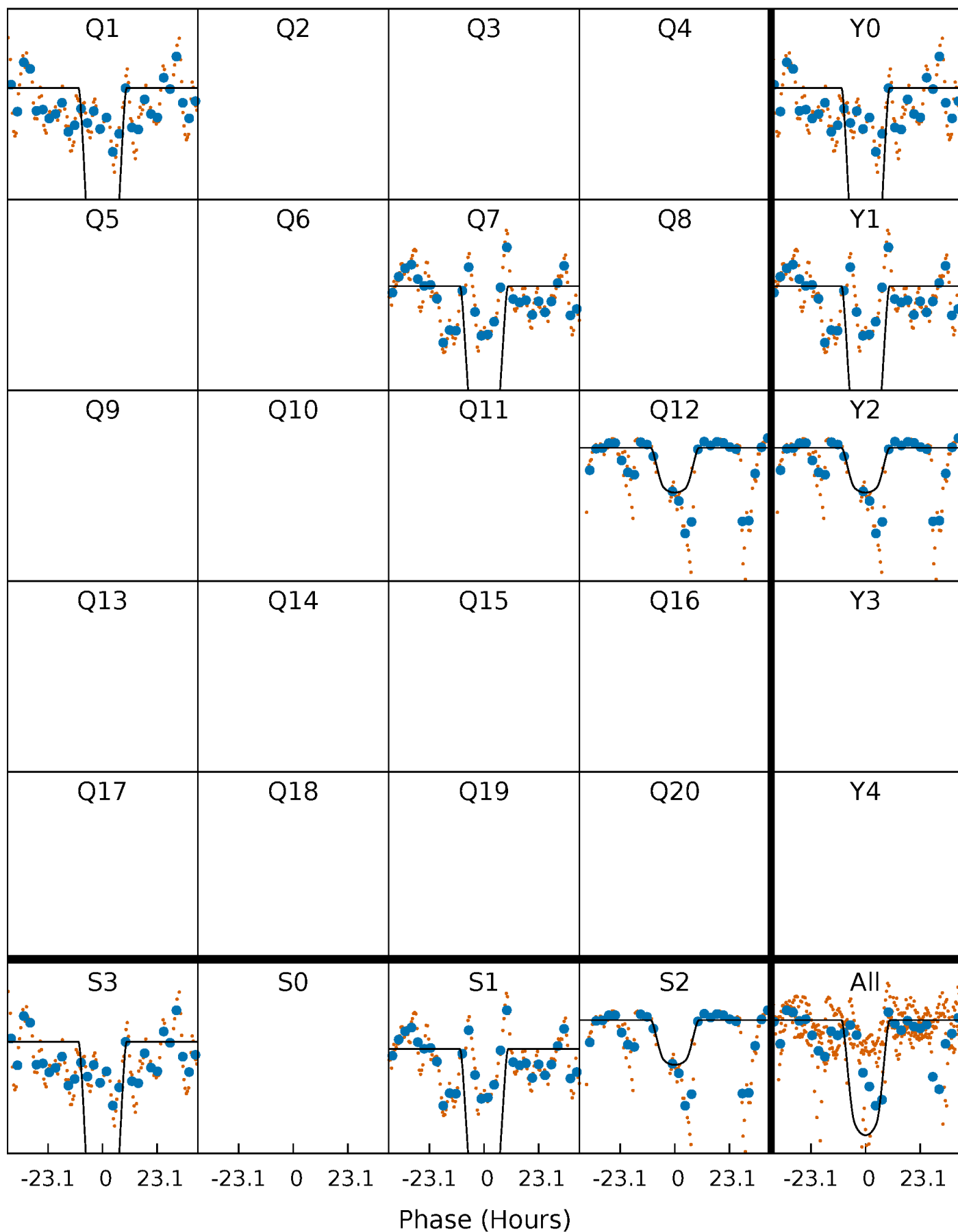
PDC Quarter-Phased Transit Curves

TCE 009291830-02 P=512.559043 Days $T_0=153.942254$ (BKJD)



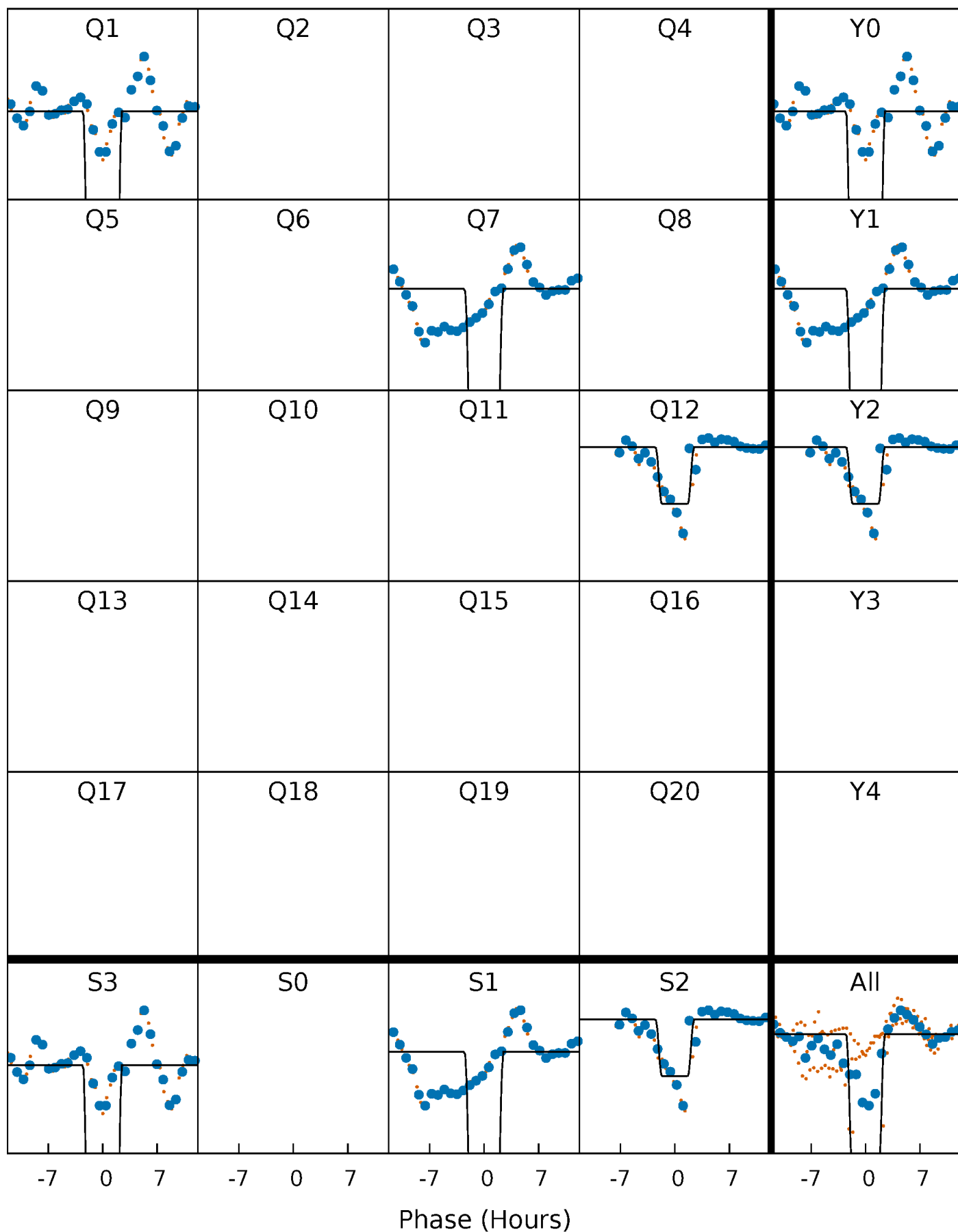
DV Quarter-Phased Transit Curves

TCE 009291830-02 $P=512.559043$ Days $T_0=153.942254$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

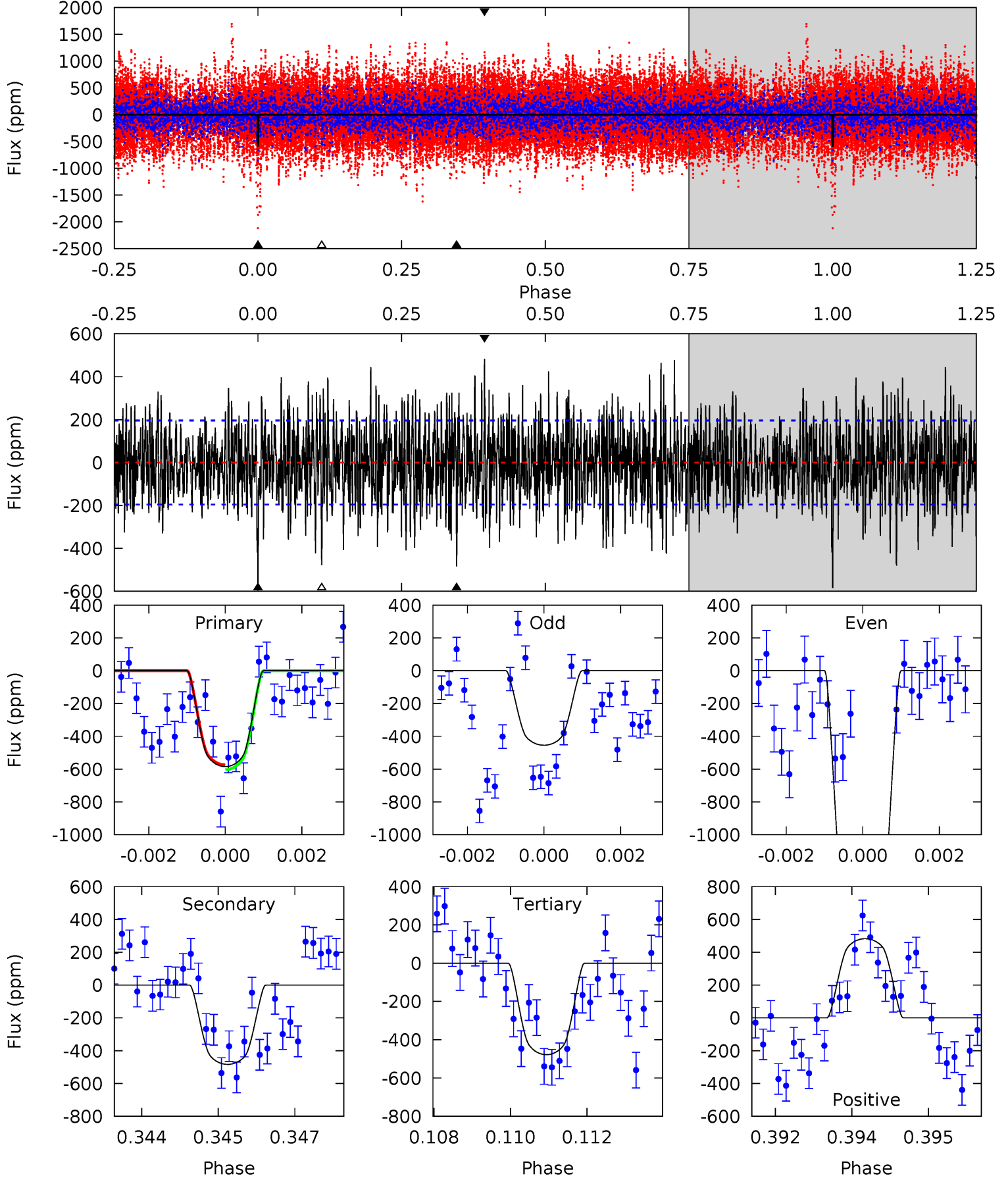
TCE 009291830-02 P=512.569041 Days $T_0=154.151894$ (BKJD)



DV Model-Shift Uniqueness Test

009291830-02, P = 512.559043 Days, E = 153.942254 Days

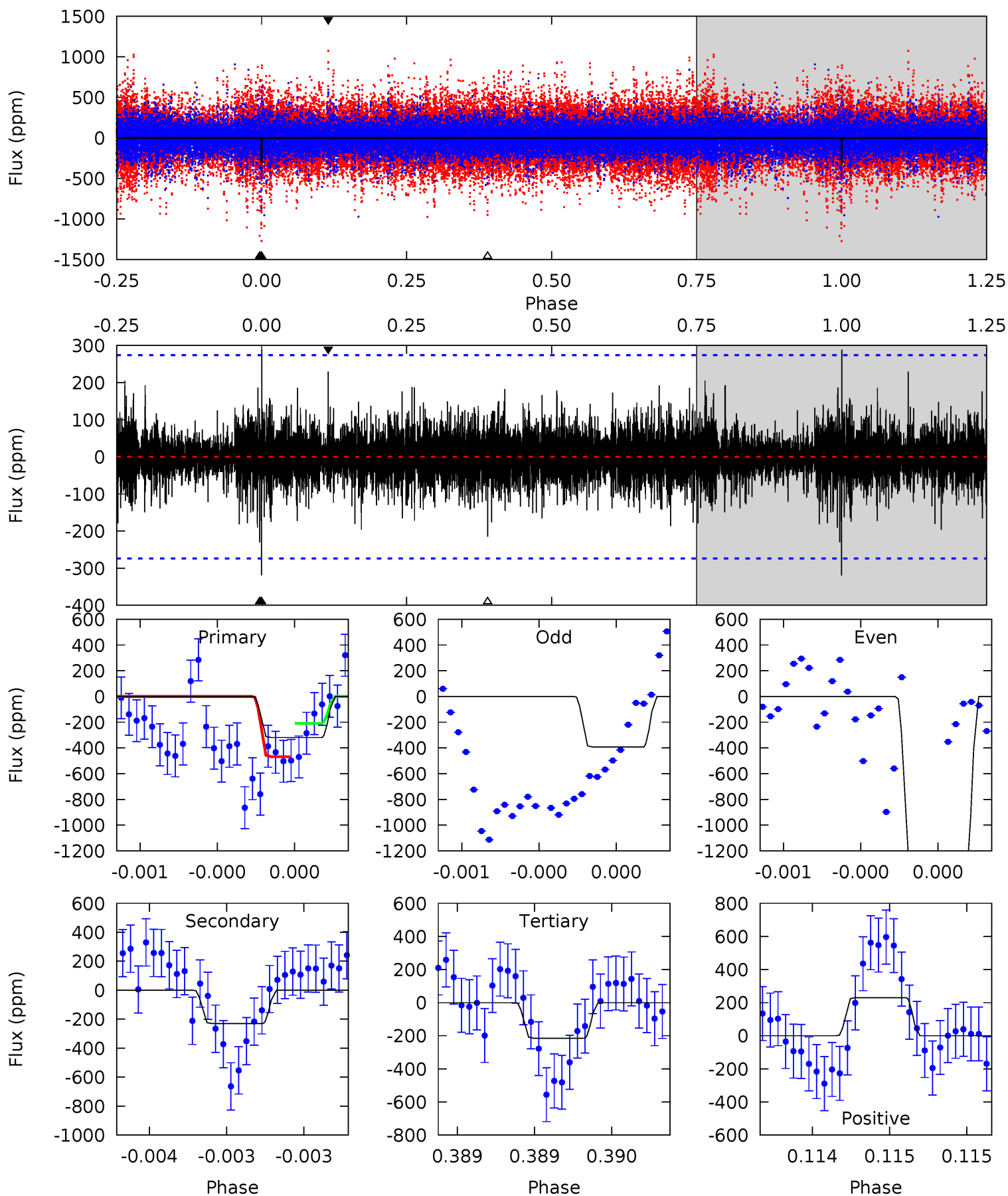
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	13.2	13.1	13.2	5.36	3.14	3.95	2.91	2.79	0.15	0.02	19.0	2.99	0.45	0.41



Alt Model-Shift Uniqueness Test

009291830-02, P = 512.569041 Days, E = 154.151894 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.55	4.72	4.40	4.72	5.62	3.55	0.99	2.15	1.83	0.31	0.00	11.4	3.55	0.47	0



Stellar Parameters For KIC 009291830

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5038^{+12}_{-163}	$2.564^{+0.033}_{-0.027}$	$0.070^{+0.050}_{-0.300}$	$15.394^{+0.631}_{-1.473}$	$3.167^{+0.050}_{-0.504}$	$0.001^{+0.000}_{-0.000}$
	+0%/-3%	+1%/-1%	+71%/-429%	+4%/-10%	+2%/-16%	+21%/-9%
Source	PHO55	AST55	SPE55	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009291830-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-483 ± 37	$92.88^{+4.71}_{-5.06}$	891^{+15}_{-25}	3550^{+69}_{-81}	104^{+13}_{-12}
Alt.	-230 ± 49	$98.58^{+4.46}_{-5.29}$	890^{+16}_{-25}	3100^{+106}_{-118}	43^{+11}_{-10}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

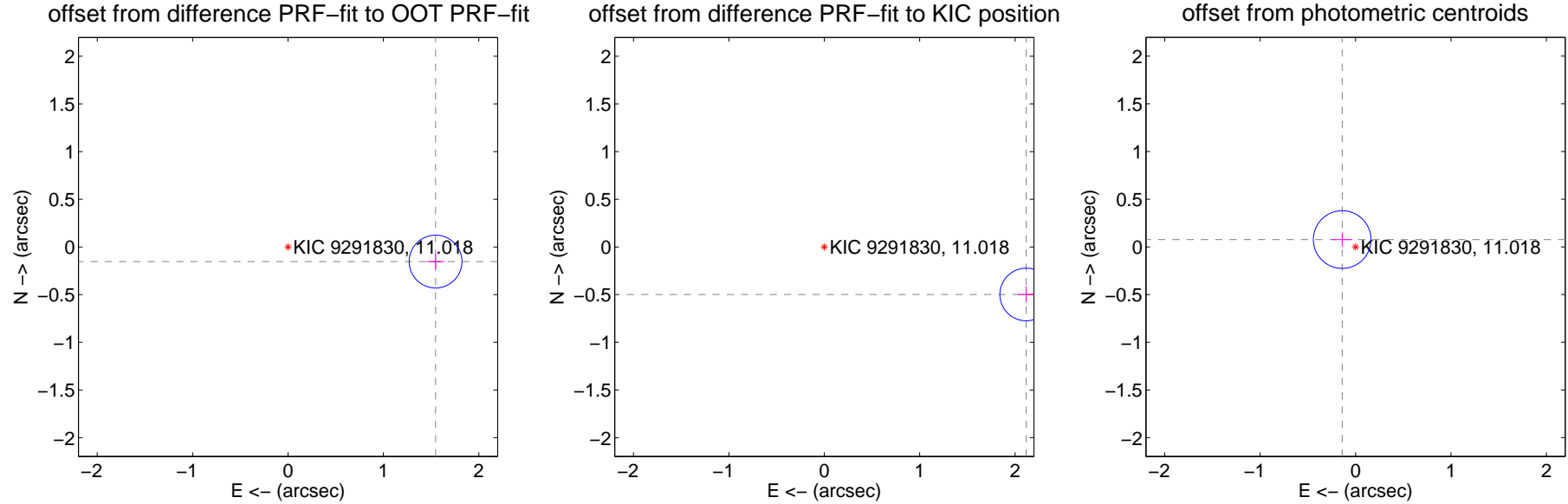
DV Centroid Data

Supplemental centroid analysis for 009291830-02. **Kepler magnitude: 11.02.** Transit SNR 37.19

There are 0 quarters with good PRF difference image offsets

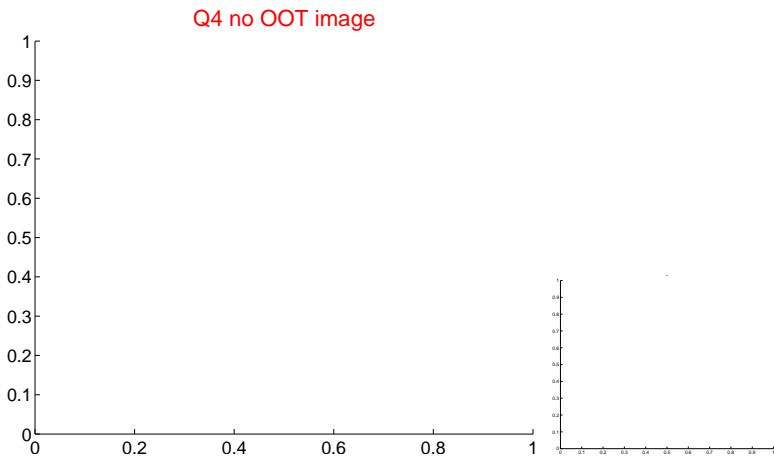
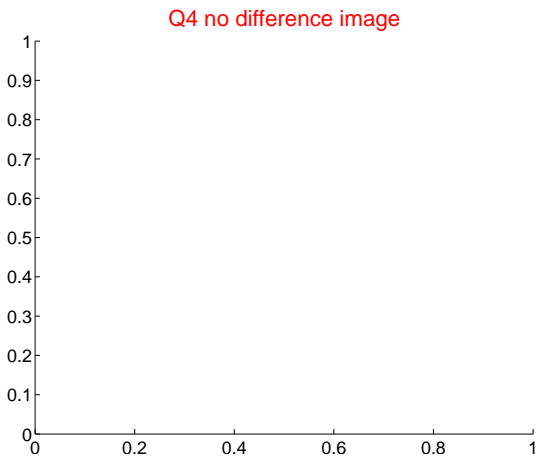
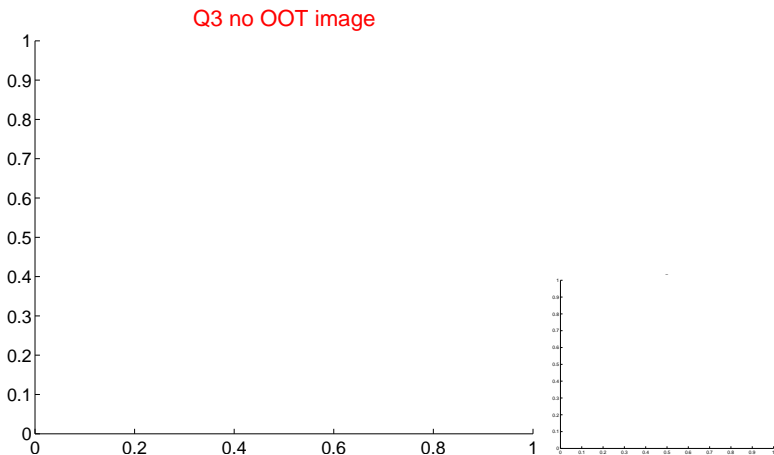
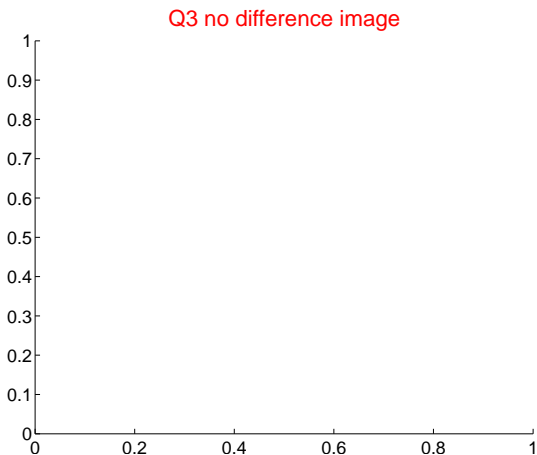
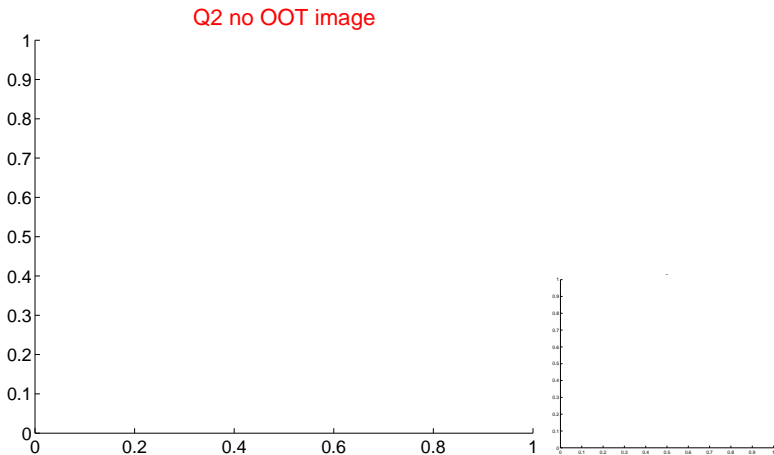
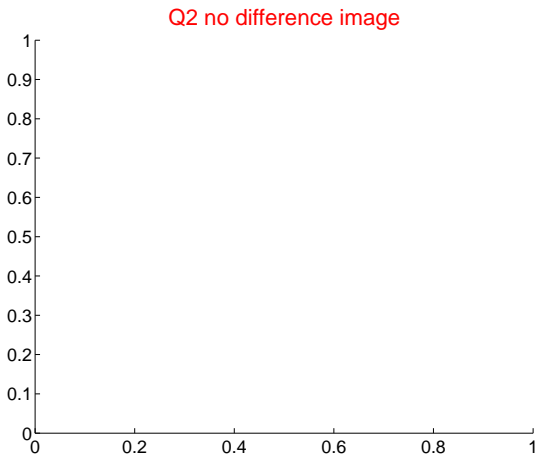
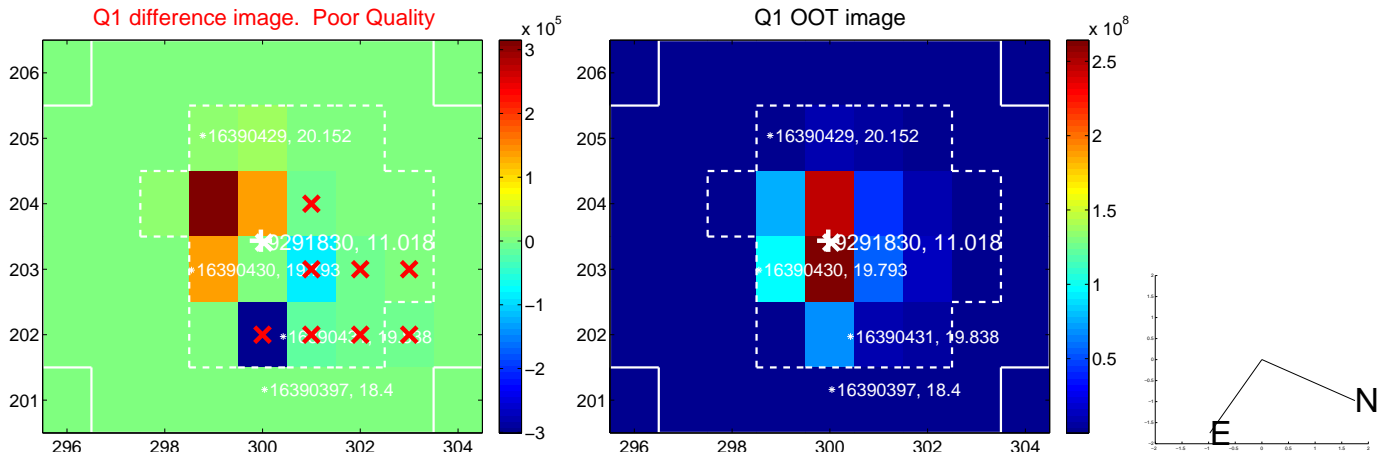
The direct PRF centroid is offset from the target star catalog position by about 0.67 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.554 ± 0.092	16.84	-1.546 ± 0.092	-0.153 ± 0.085
PRF-fit source offset from KIC position	2.175 ± 0.092	23.64	-2.117 ± 0.092	-0.498 ± 0.085
photometric centroid source offset	0.16 ± 0.10	1.59	0.14 ± 0.11	0.08 ± 0.07

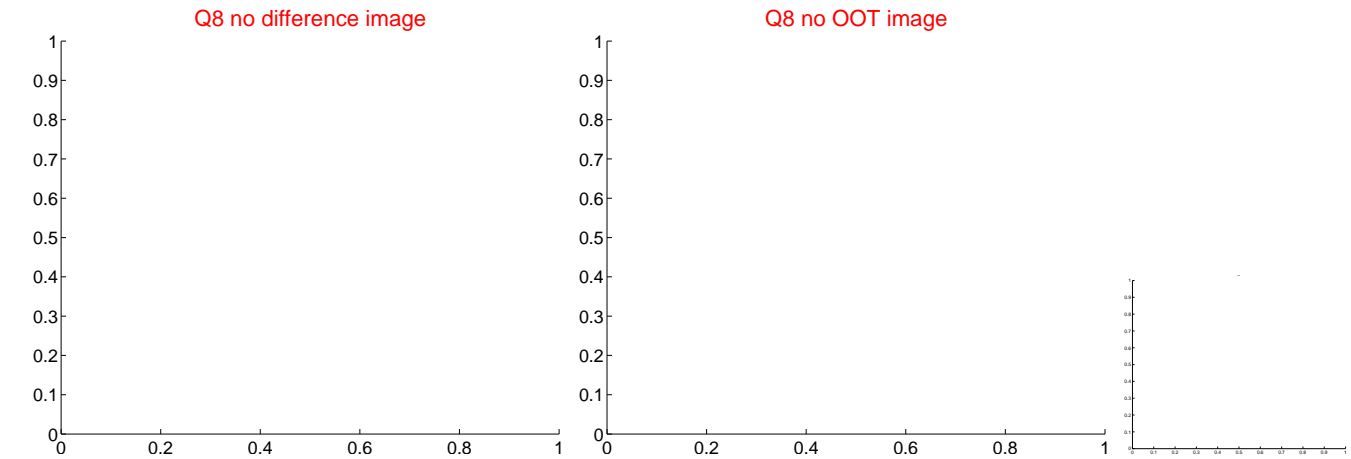
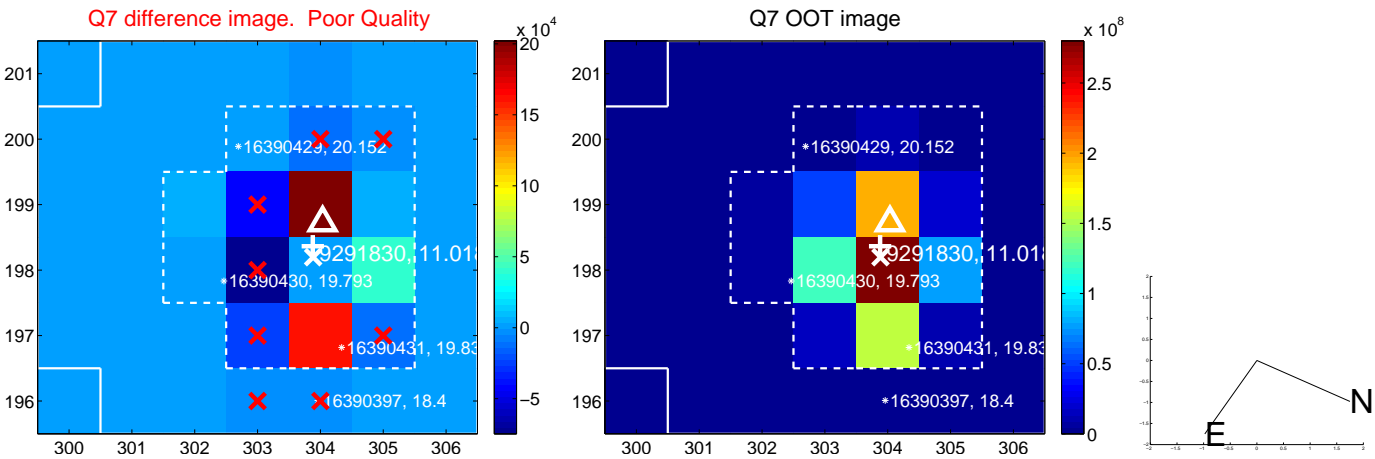
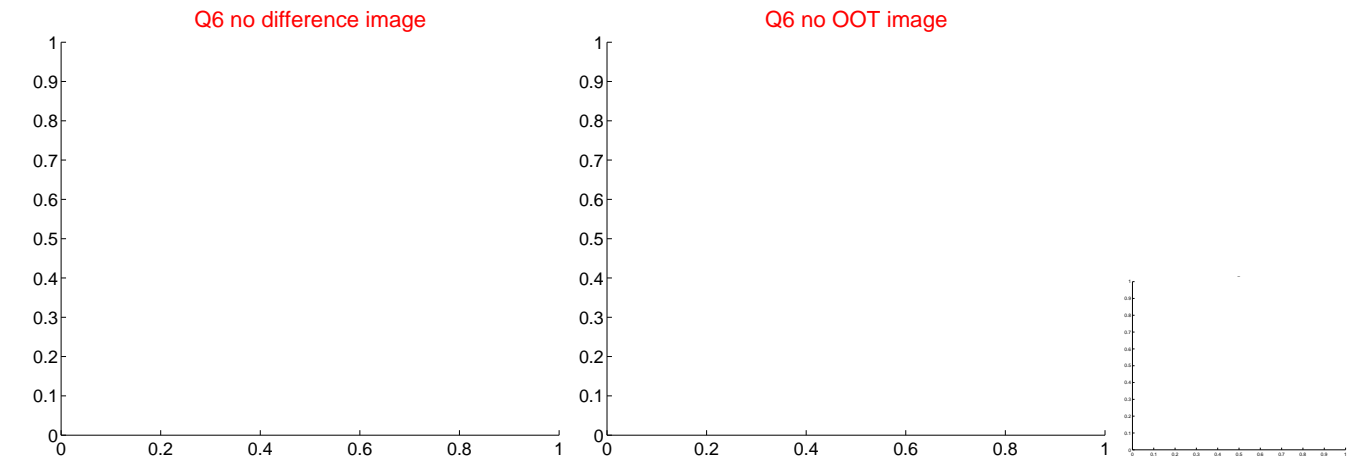
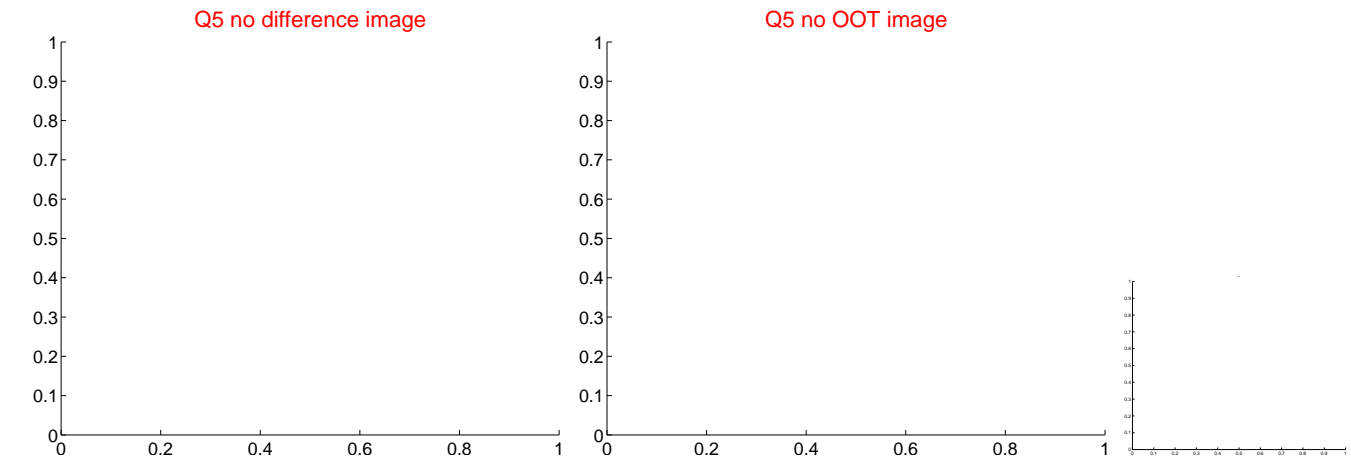


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



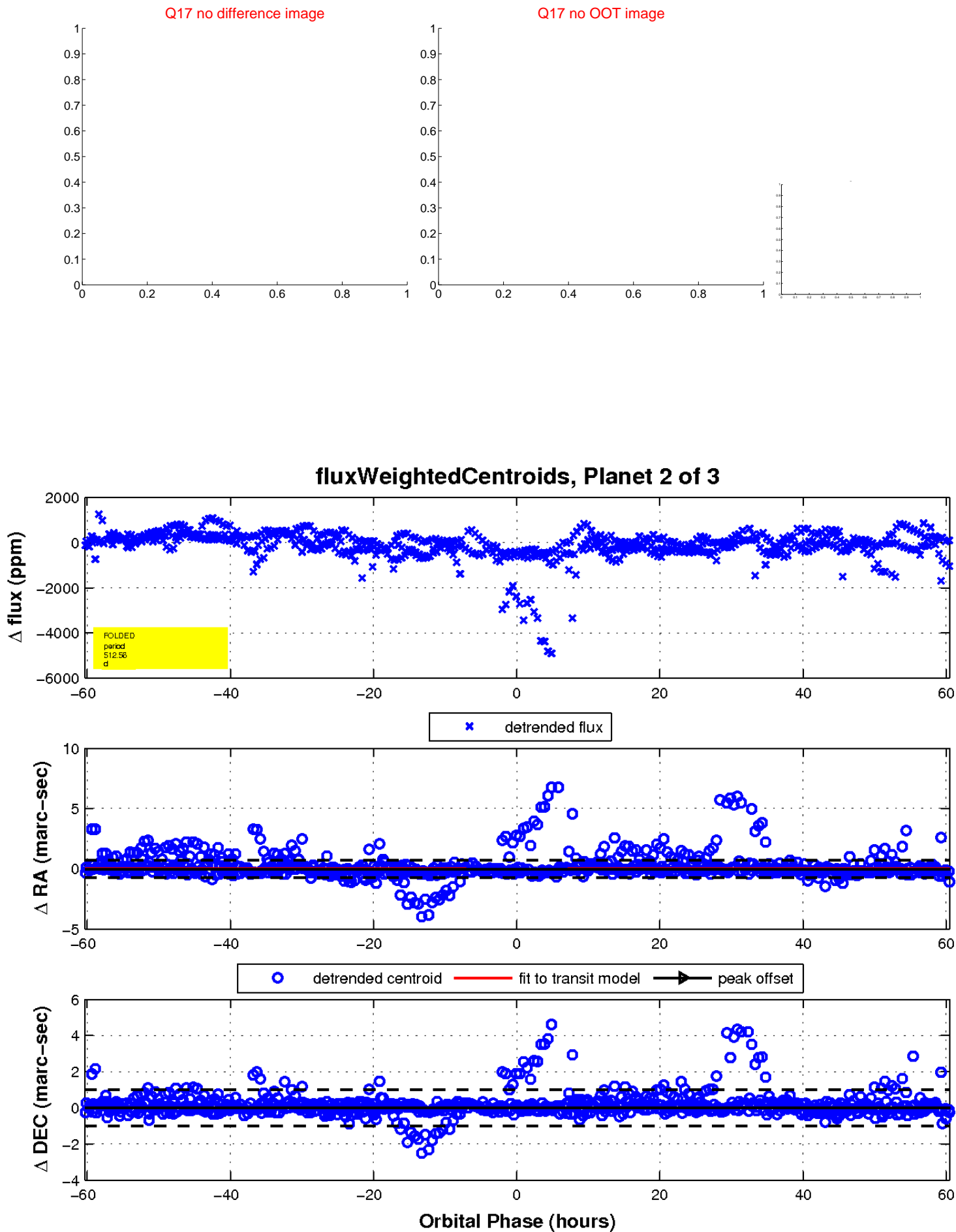
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

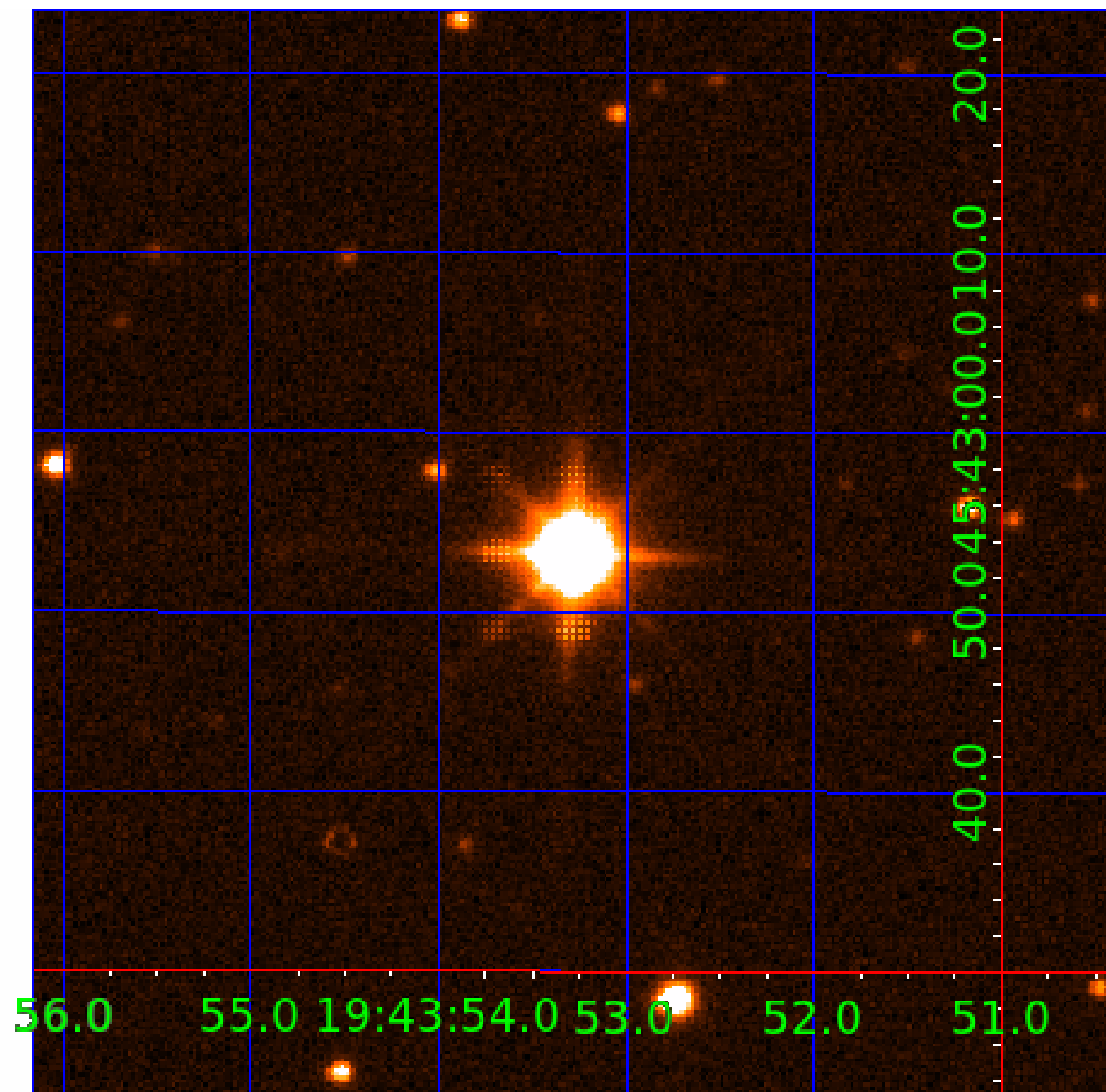


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009291830

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
009291830-01	OBS	No	468.156357	240.023615	3260.4	18.518	104.4	43.1	15.39	5038	106.84	45.53
009291830-02	OBS	No	512.559043	153.942254	2441.3	20.181	52.1	37.2	15.39	5038	93.44	40.35
009291830-03	OBS	No	332.861037	167.893415	179.2	16.221	9.6	3.1	15.39	5038	20.61	71.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009291830-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
009291830-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
009291830-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

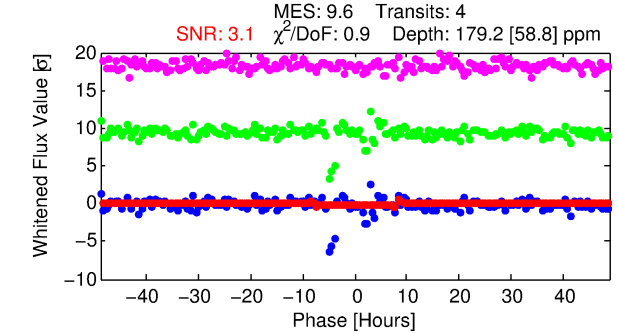
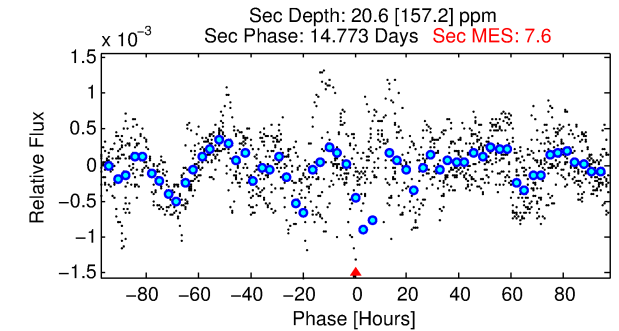
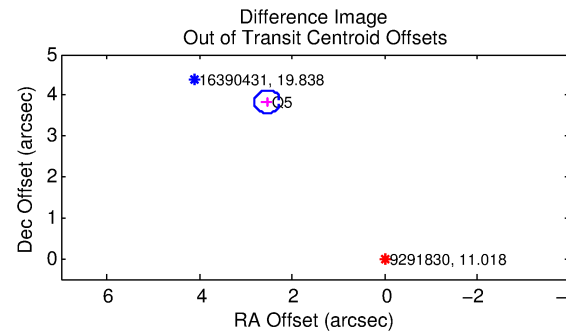
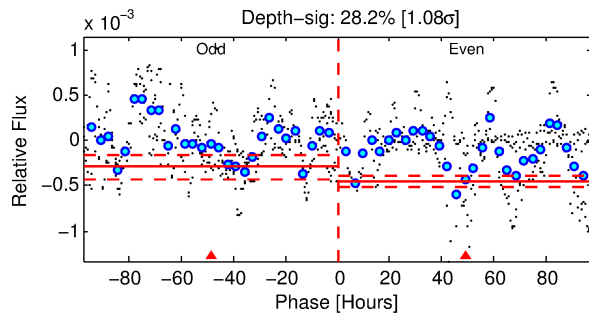
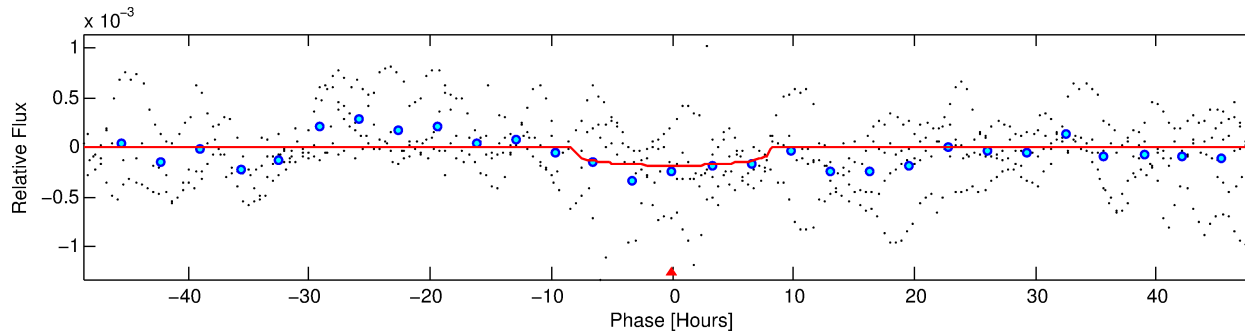
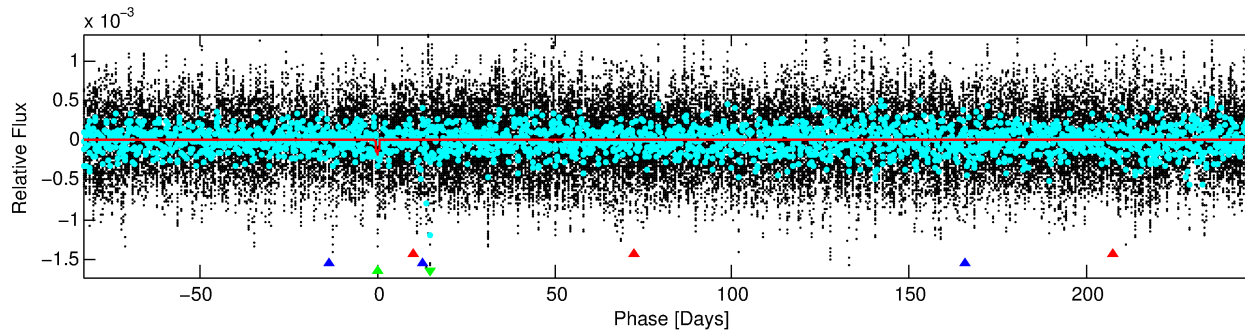
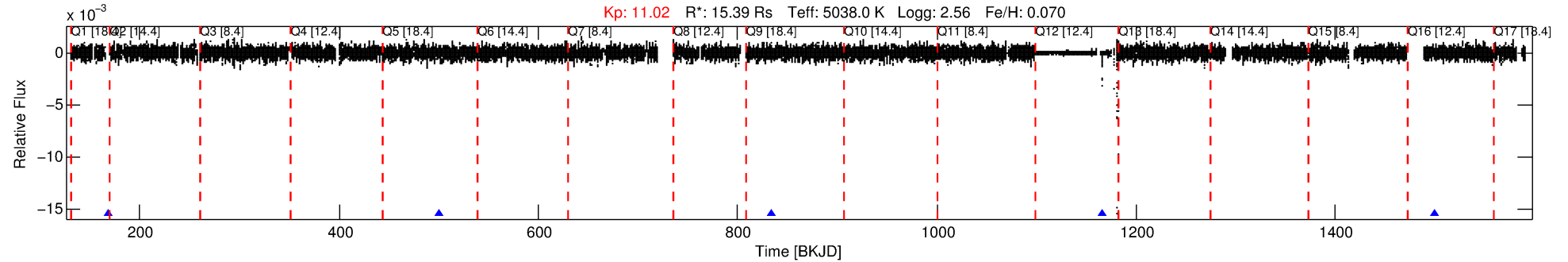
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009291830-03

No Significant Match Found

DV One-Page Summary

KIC: 9291830 Candidate: 3 of 3 Period: 332.861 d



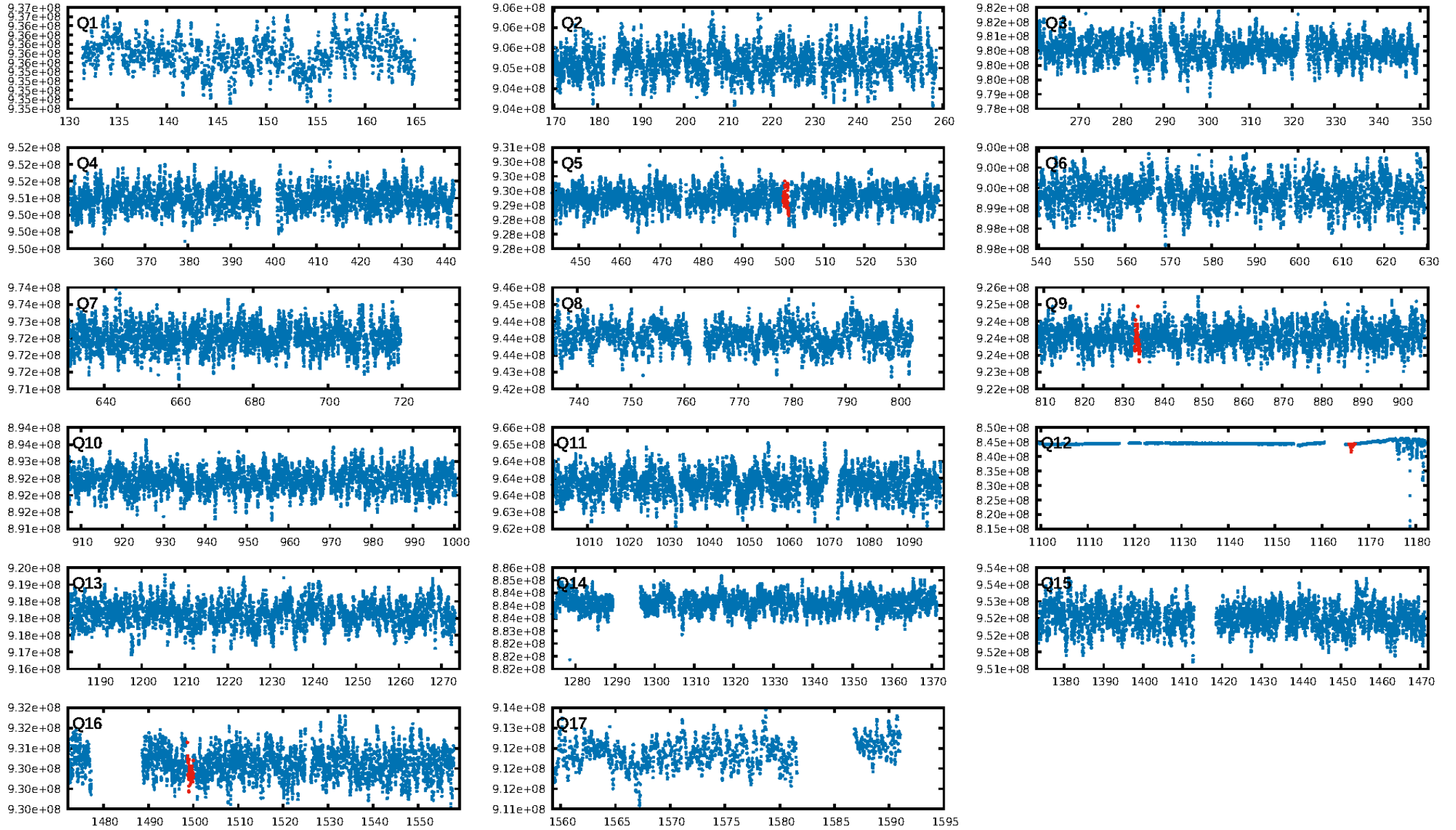
DV Fit Results:

Period = 332.86104 [0.00677] d
Epoch = 167.8934 [0.0194] BKJD
Rp/R* = 0.0123 [0.0107]
a/R* = 142.64 [447.34]
b = 0.44 [5.71]
Seff = 71.75 [10.97]
Teq = 742 [28] K
Rp = 20.60 [18.15] Re
a = 1.3807 [0.0948] AU
Ag = 50.85 [398.46] [0.13 σ]
Teffp = 3064 [6003] K [0.39 σ]

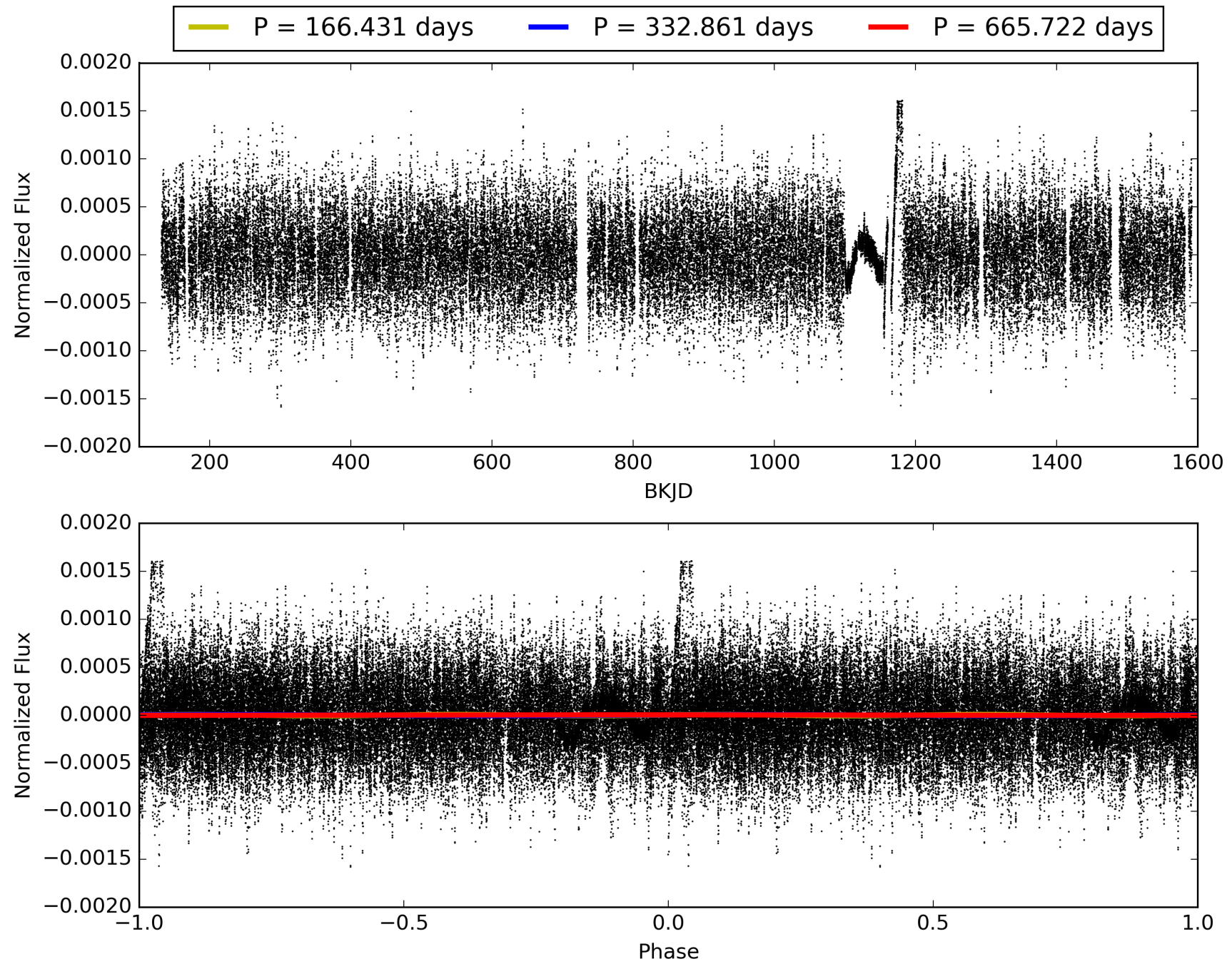
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [131.90 σ]
ModelChiSquare2-sig: 40.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.39e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.136
Centroid-sig: 3.9%
Centroid-so: 3.374 arcsec [1.62 σ]
OotOffset-rm: 4.608 arcsec [49.44 σ]
KicOffset-rm: 4.364 arcsec [46.64 σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 009291830-03, PDC Light Curves

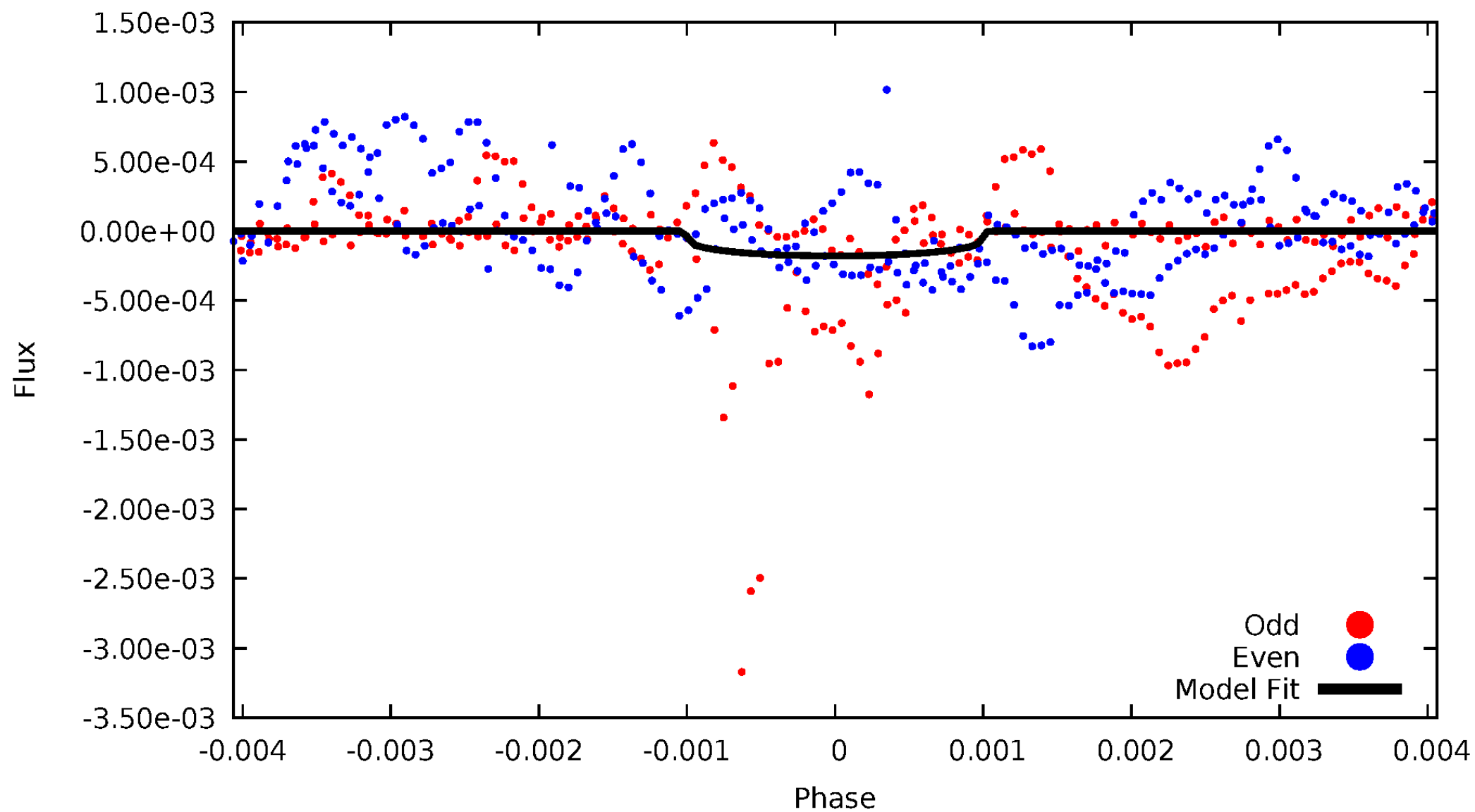


TCE 009291830-03



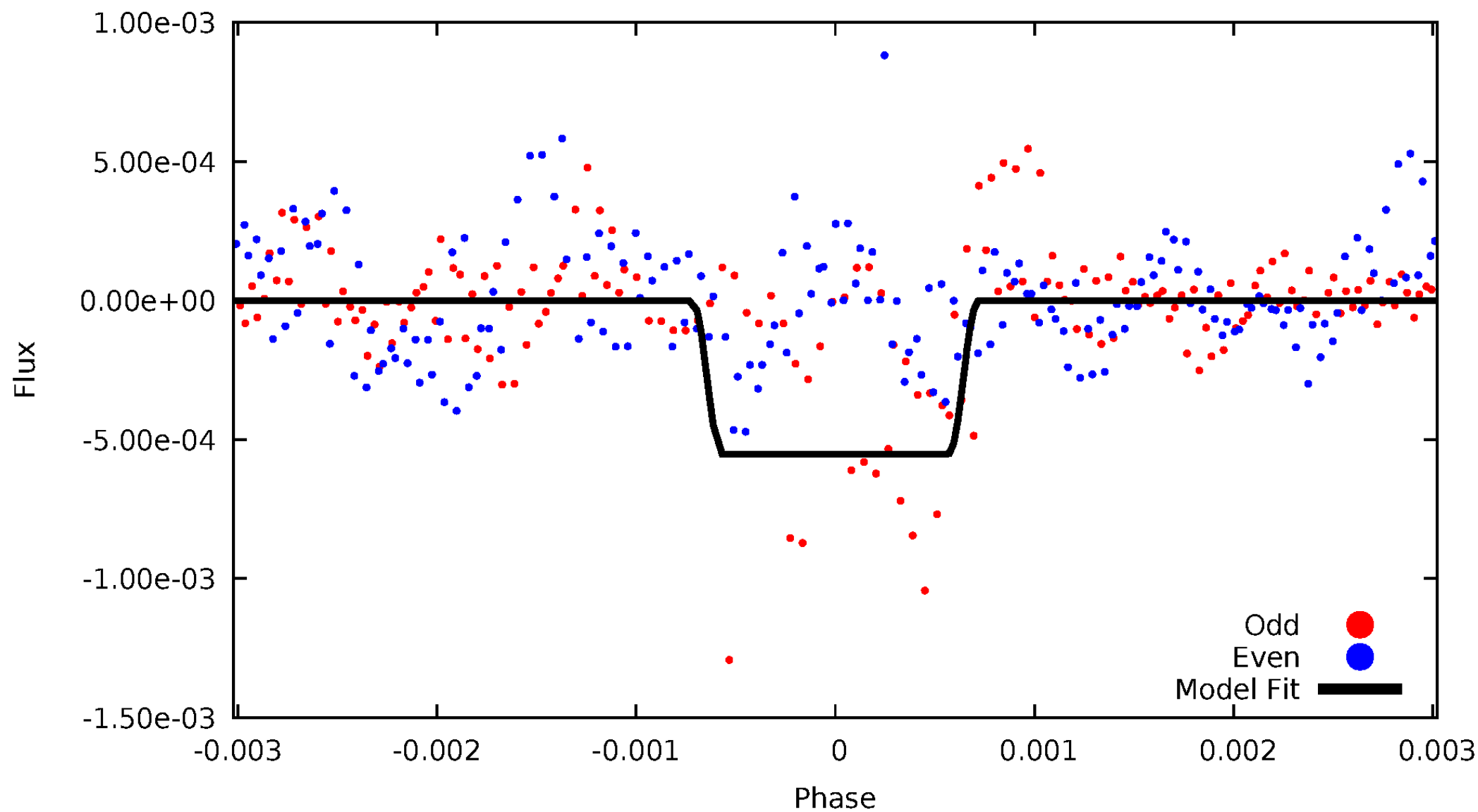
DV Odd/Even

TCE 009291830-03



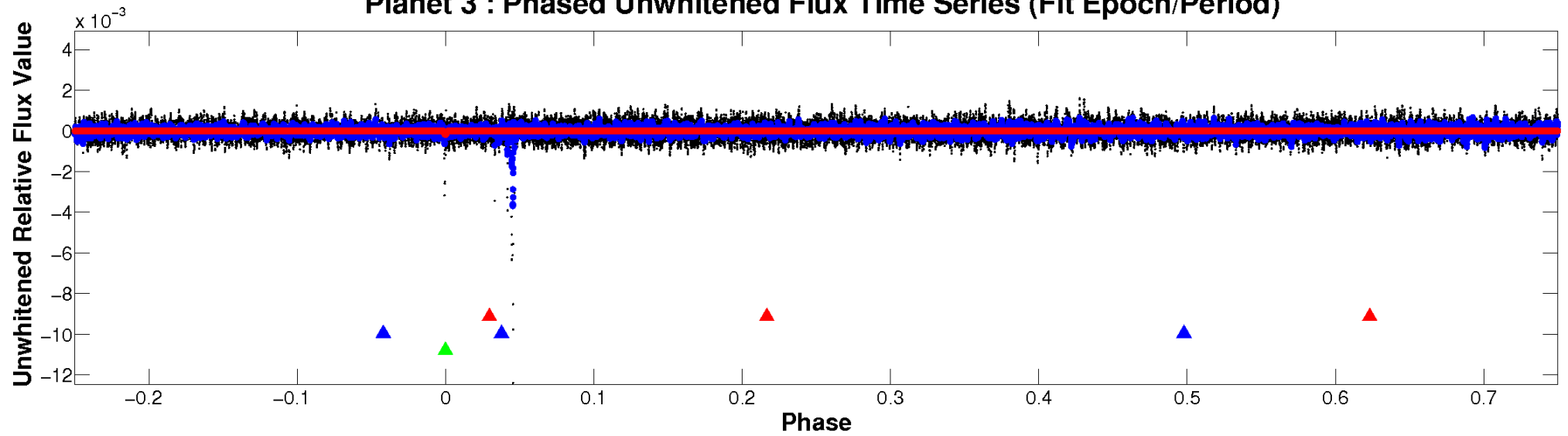
ALT Odd/Even

TCE 009291830-03

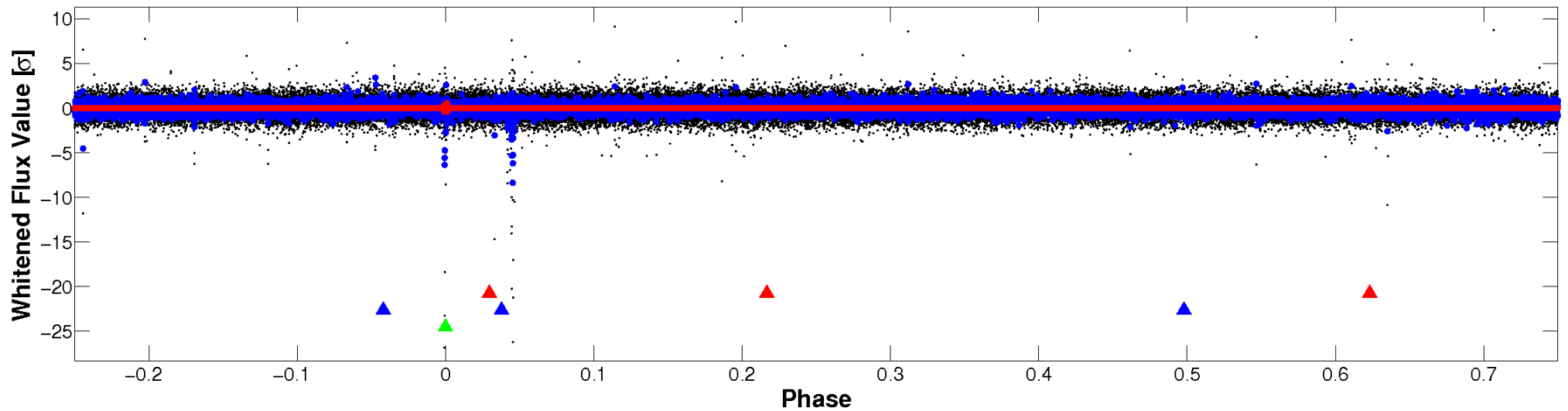


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

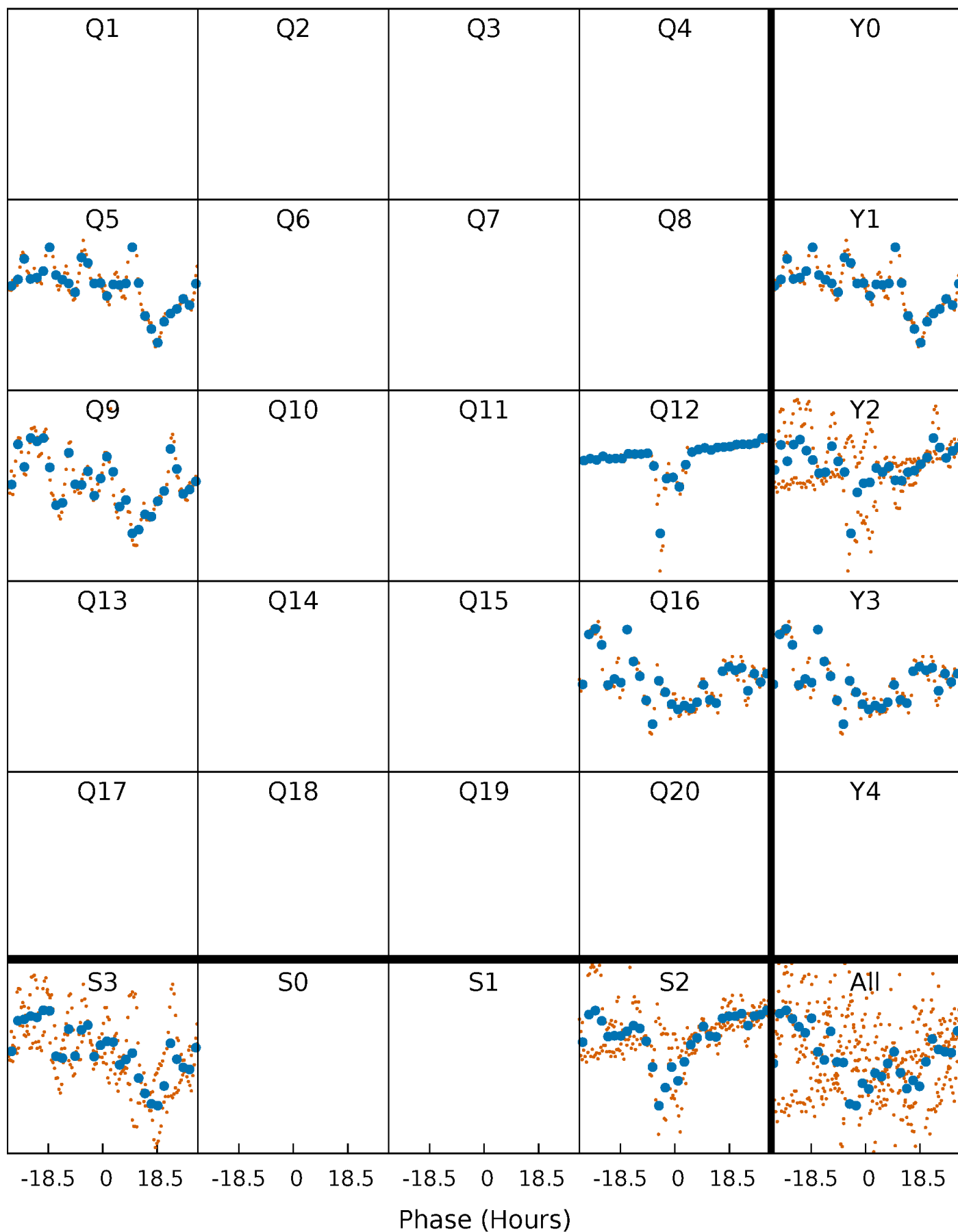


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 009291830-03 $P=332.861038$ Days $T_0=167.893415$ (BKJD)



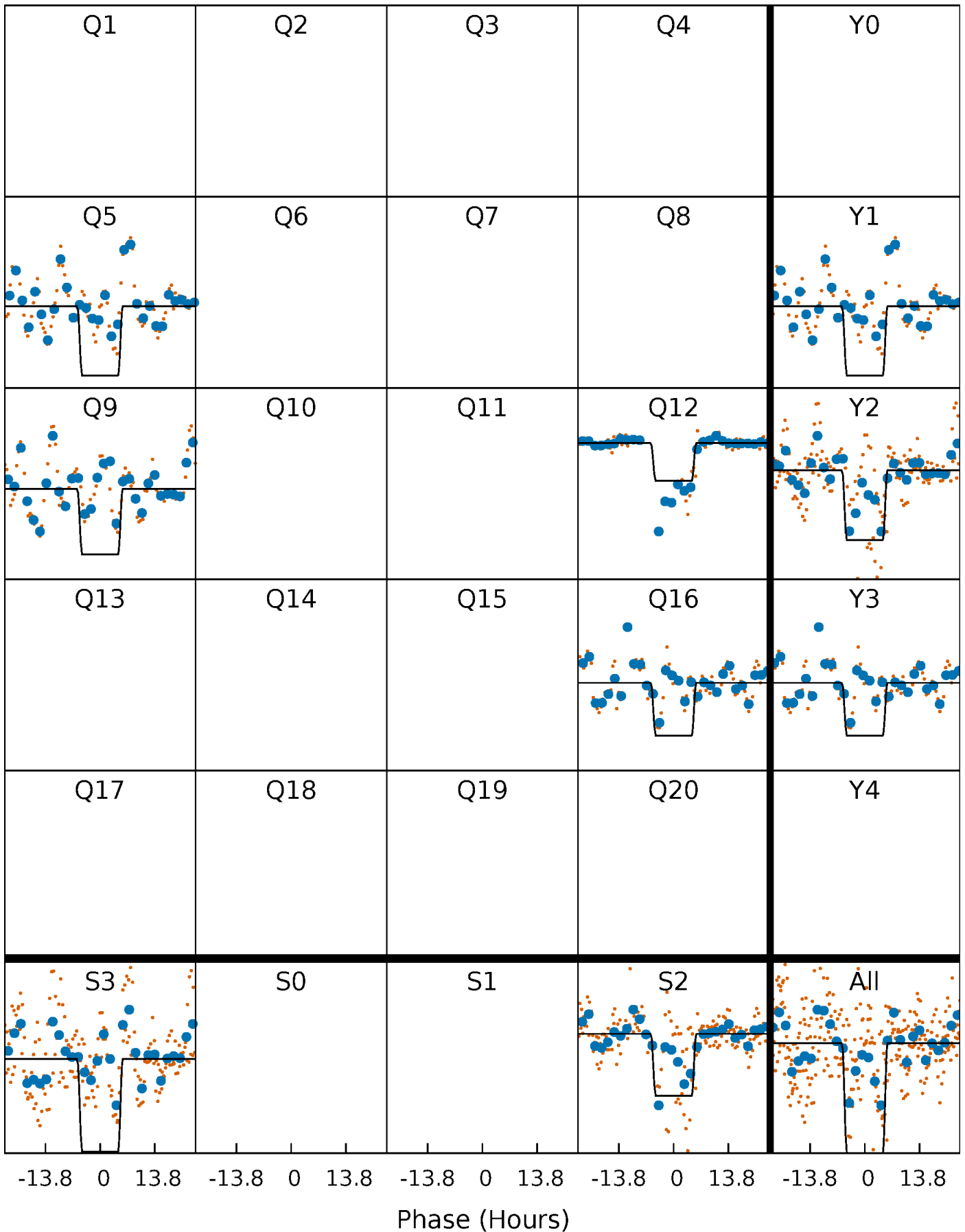
DV Quarter-Phased Transit Curves

TCE 009291830-03 $P=332.861038$ Days $T_0=167.893415$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

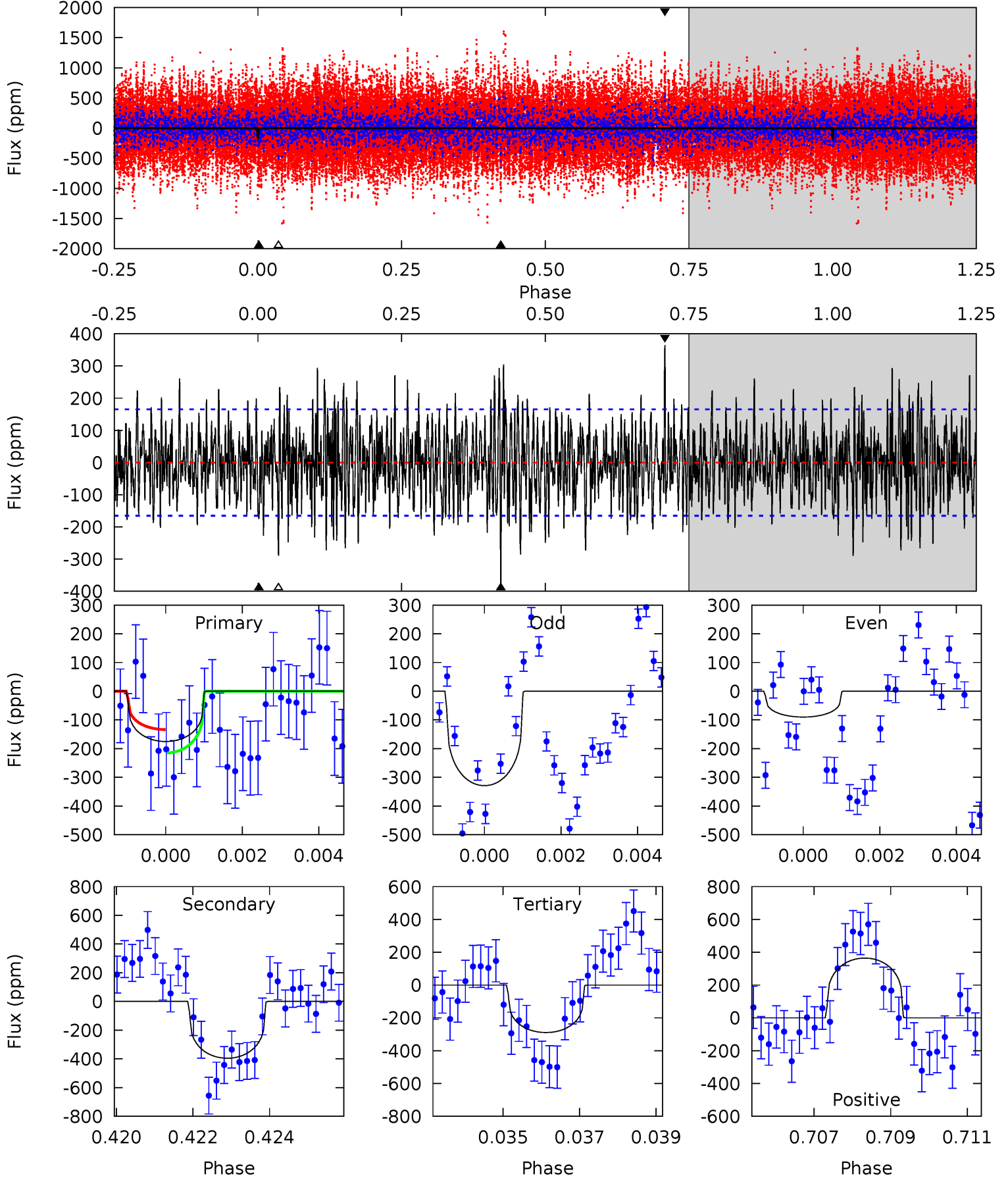
TCE 009291830-03 $P=332.754073$ Days $T_0=168.140948$ (BKJD)



DV Model-Shift Uniqueness Test

009291830-03, P = 332.861038 Days, E = 167.893415 Days

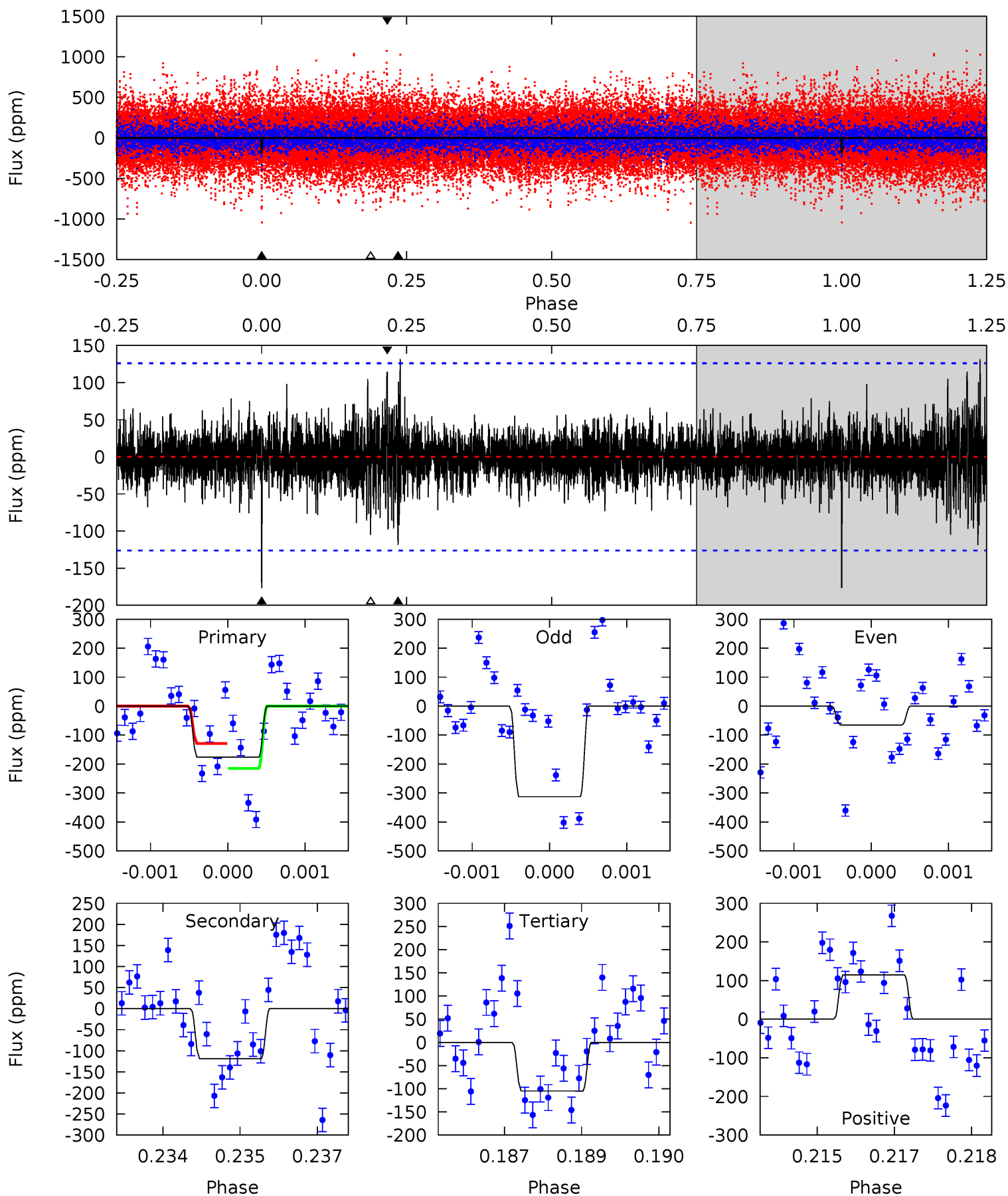
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.64	12.7	9.31	11.7	5.32	3.08	3.06	-3.67	-6.08	3.41	1.01	3.87	2.10	0.48	1.32



Alt Model-Shift Uniqueness Test

009291830-03, P = 332.754073 Days, E = 168.140948 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.54	5.07	4.48	4.89	5.39	3.19	1.03	3.06	2.64	0.59	0.18	5.27	3.20	0.43	1.83



Stellar Parameters For KIC 009291830

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5038^{+12}_{-163}	$2.564^{+0.033}_{-0.027}$	$0.070^{+0.050}_{-0.300}$	$15.394^{+0.631}_{-1.473}$	$3.167^{+0.050}_{-0.504}$	$0.001^{+0.000}_{-0.000}$
	+0%/-3%	+1%/-1%	+71%/-429%	+4%/-10%	+2%/-16%	+21%/-9%
Source	PHO55	AST55	SPE55	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009291830-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-396 ± 31	$22.69^{+17.35}_{-13.34}$	1029^{+17}_{-30}	5933^{+4022}_{-1296}	787^{+3951}_{-528}
Alt.	-119 ± 23	$39.13^{+16.68}_{-17.03}$	1028^{+17}_{-32}	3706^{+893}_{-413}	77^{+180}_{-40}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

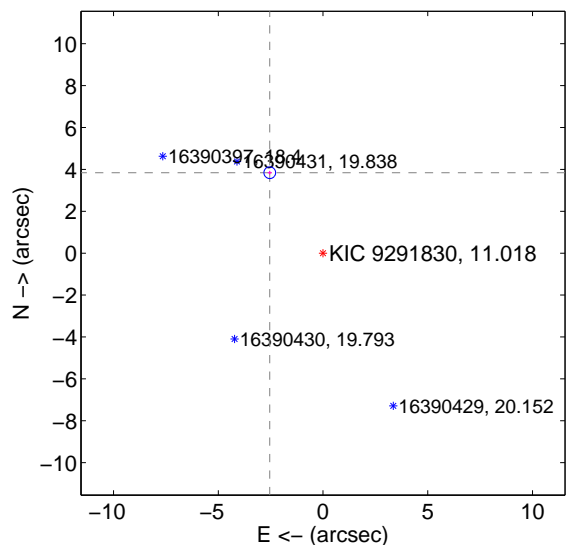
Supplemental centroid analysis for 009291830-03. **Kepler magnitude: 11.02.** Transit SNR 3.07

There are 0 quarters with good PRF difference image offsets

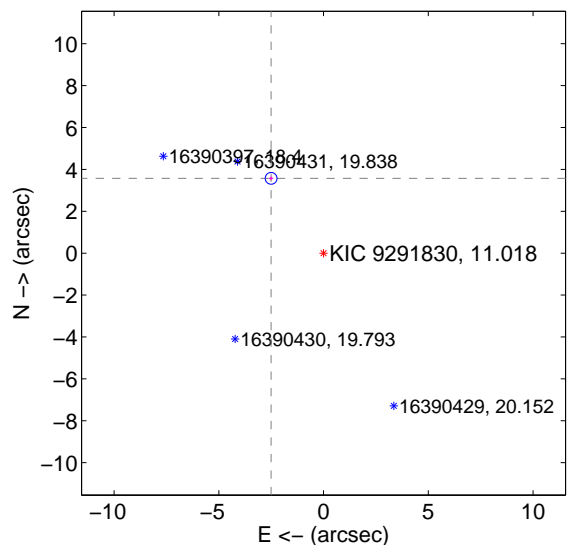
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.608 \pm 0.093	49.44	2.543 \pm 0.103	3.843 \pm 0.089
PRF-fit source offset from KIC position	4.364 \pm 0.094	46.64	2.505 \pm 0.103	3.573 \pm 0.089
photometric centroid source offset	3.37 \pm 2.08	1.62	-3.30 \pm 2.11	0.71 \pm 1.37

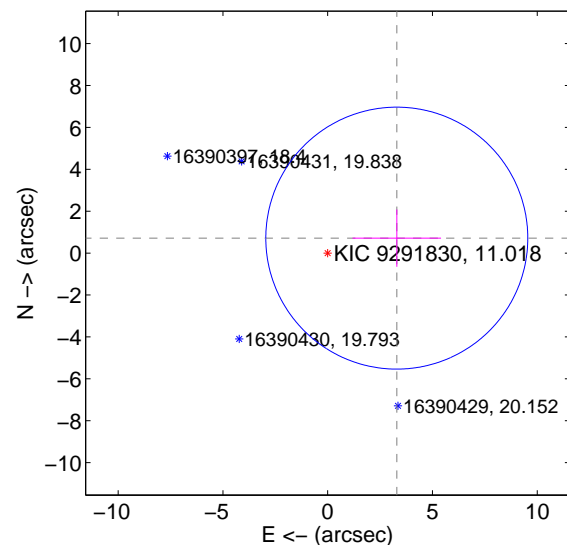
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

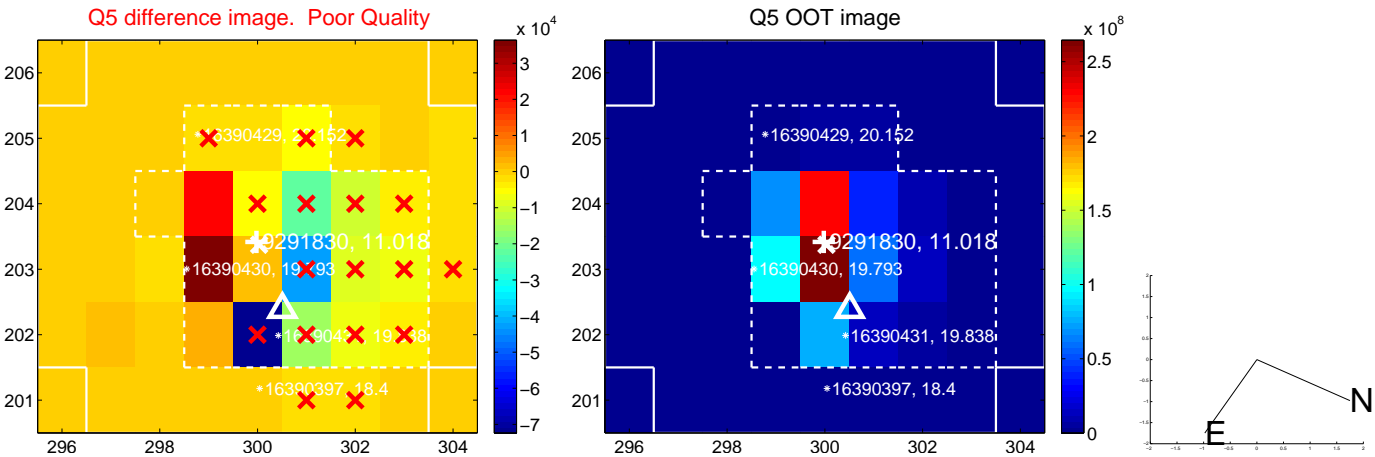


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

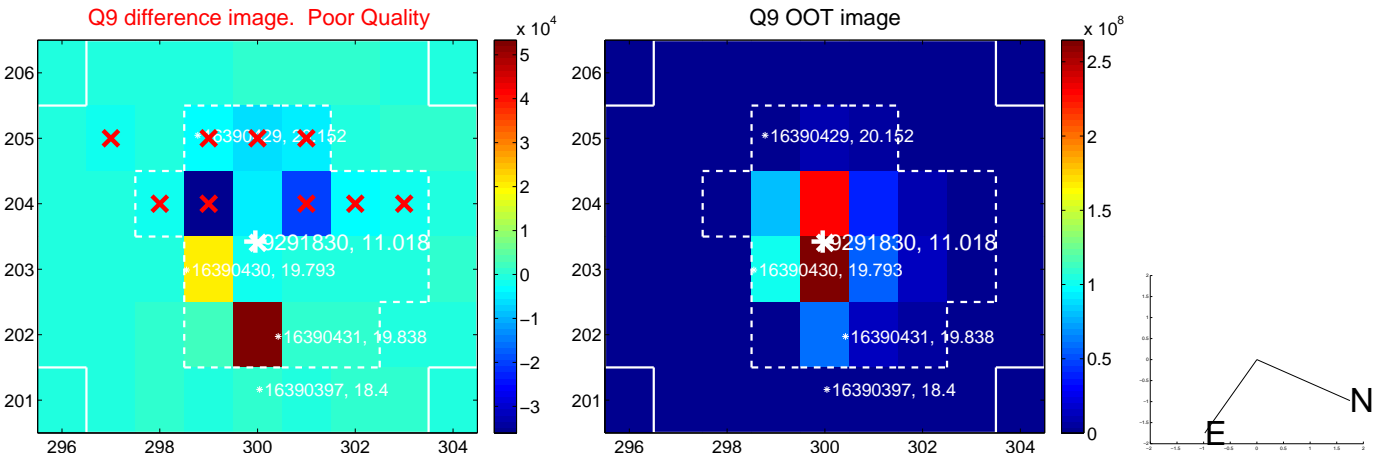
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



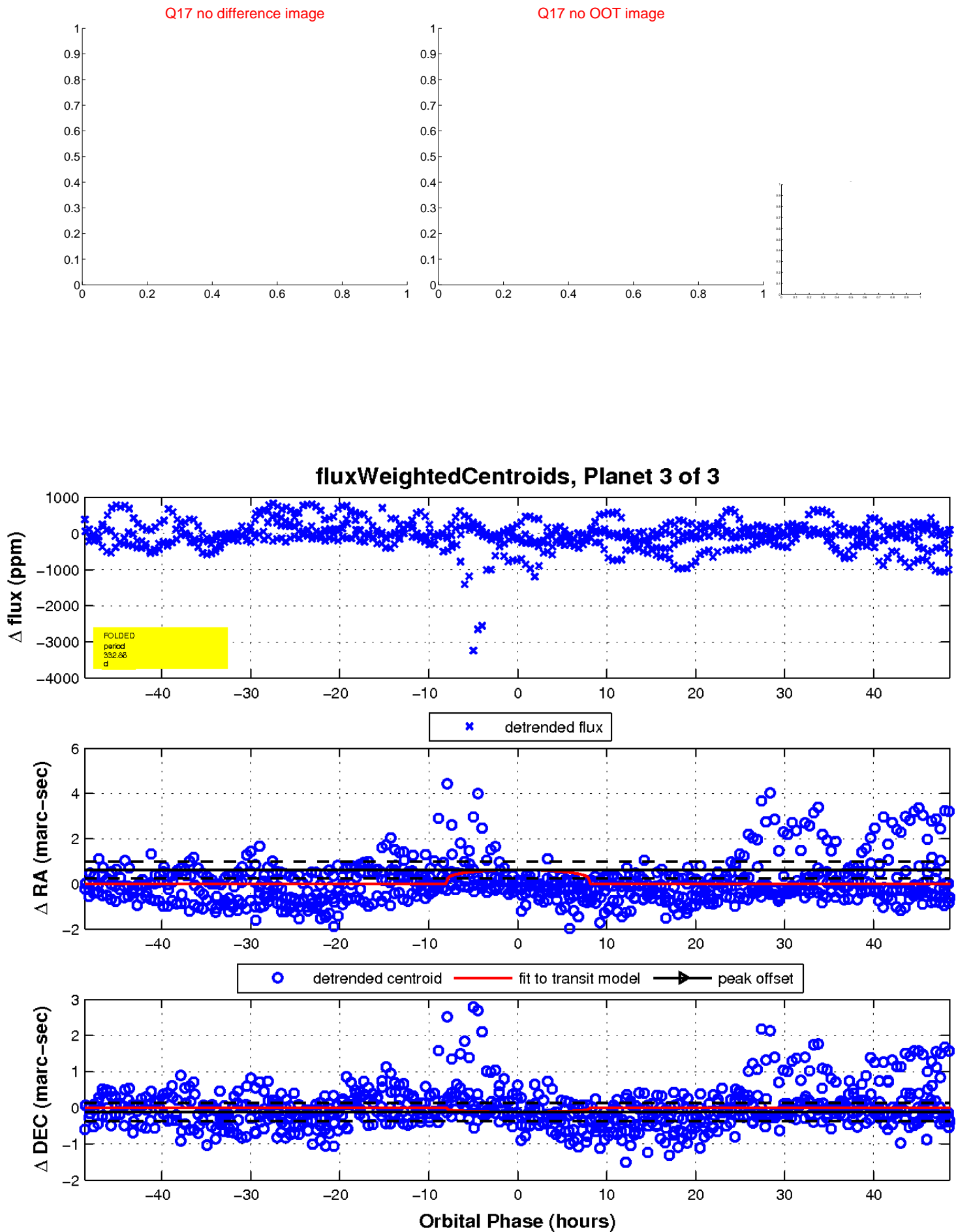
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

